CATHOLIC UNIVERSITY OF EASTERN AFRICA

FACULTY OF INFORMATION & COMPUTER SCIENCE

PROJECT PROPOSAL

PROGRESS MONITORING SYSTEM

FOR

STUDENT FINAL YEAR PROJECT

A CASE STUDY FOR CATHOLIC UNIVERSITY

BY

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CMT 400

SUPERVISED BY

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Submitted in partial fulfillment of the requirements of Bachelor of Science in Computer Science

DECLARATION

I hereby declare that this Project proposal is my own work and has, to the best of my knowledge, not been submitted to any other institution of higher learning.

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Date: ....

This project proposal has been submitted as a partial fulfillment of requirements for the Bachelor of Science in Information and Computer Science of Catholic University of Eastern Africa with my approval by the University supervisor.

Supervisor: _____MR CHRIS NANDASABA_____

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ABSTRACT

Processes associated with undergraduate final year projects have always been a manual process which requires a lot of paperwork and could sometimes be a cumbersome and tiring task for the personnel in charge. The manual process sometimes leads to time wasting, impeding of project work because the student carrying out the project work is not able to update the lecturer on the level of execution of the project. The objective of this proposal is to present the process of Progress Monitoring System for Student Final Year Project as well as cutting down on the cost and time required by the student to produce a quality technical report. Working from literature review, observation judgmental techniques and interviews I will describe student project facilitation technology and its impact to Catholic University.

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LIST OF ABREVIATIONS

1. **FYP-** Final Year Project
2. **PMS-** Progress Monitoring System

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CHAPTER ONE

INTRODUCTION

1.1 Background Study

Final Year Project (FYP) is an integral part of University Education, and an important one. It is the time that the student works on an important assignment in terms of size and difficulties, and it is also the platform to equipe them with practical skills to work on future projects in the industry.

Despite for all of its good intentions, the approach for managing students' project is outdated, if not archaic. Key issues in system development project such as tracking project progress and accurate assessment are often difficult to manage. The objective of this paper is to present the process of Progress Monitoring System for Student Final Year Project. It is based on existing process regarding to solve a problem of monitoring FYP for students.

Project monitoring is a significant part of project management. All project activities should be carefully monitored while the project is being accomplished. This helps the project manager to keep informed of work progress and apply timely correctives. It is essential that project monitoring is simple and not time-consuming. Help track student if they have problem to finish their project.

Data and information for FYP is normally recorded manually. Lecturers need to record all data and information and keep all information in files. Student also have a role of keeping their own data which among other things include the project log book which records all the meetings done by the student and the supervisor. It is an important document in final analysis of results, this can be easily lost and the student stands at the risk of losing marks because there is no evidence for all the meetings. Data can get lost or tempered with easily in the current system which is utmost manual. The methods in place are not consistent in order to find old record and data which is also not stored in any digital archives.

The proposed solution is a web application which helps students gain better control of their project planning and implementation through keeping students connected with supervisors regardless of time and location. Helps students to complete projects, keep within budget, stay on track and collaborate with supervisors. Keeps students on track and provide them with reports and real time data so that their project success is assured. It also helps supervisors to analyze the

student submitted documents and ensure they are for the best standards and are original to their best knowledge and system analysis.

1.2 Problem Statement

Nowadays every 4th year student has to come up with a system development project which he/she has to work on it for the two semesters and submit it till the end of the year. During the year the student also has to submit various products that show that this is his/her workings. The project proposal is the very fast document to be submitted and needs to be approved by the supervisor for the project to kick off.

When the project is approved the progress need to be recorded in the project logbook and be signed by the supervisor at every meeting, the logbook is always kept by the student. Normally, during supervision phase, students have to organize meeting with their supervisors to show their weekly progress on the project. Log book is compulsory to record all meeting between student and supervisor otherwise the meetings will be null. Thus, it is difficult to manage students. All students will miss communication in order to achieve the good product. It is not easy to keep student connected with supervisor. One of the supervisor's task is to track each student progress. One of the reason students fail to meet their schedule and their time are limited. In addition, supervisor has one or more or a whole class to manage and is hard to meet all of them and record every meeting. As a result, they cannot do corrections on work submitted and will get lower marks for their project. The log is a paper which can be lost or misplaced making it difficult for the student progress to be tracked.

Besides that, review process is currently done manually. It is difficult and requires a long time to retrieve files and information stored.

On evaluation phase also, evaluator will give marks to students based on their presentation. All marks will be recorded on the form provided, Once the form is missing or damaged, marks will be lost. This process requires a lot of man power and there is also no privilege on student's information. With this system, project monitoring, tracking review, evaluation, coordination and final assessment will be easier for the supervisor and coordinators.

1.3 Goal Statement

This project aims to enhance and facilitate the processes of system development project for final year students for the students to focus on development and give best results for their individual project. The proposed system will enhance effective communication among the participating parties and helps the supervisors in document and file analysis.

1.4 Objectives

1. To enhance and facilitate the process of progress monitoring of student final year system development project.
2. To provide a technology educational tool that ease and maintain effective communication between all the involved parties while minimizing administrative overhead and better control of project progression and monitoring.
3. The System will facilitate generation of supervision and performance reports to facilitate decision making and grading process.

1.5 Research Questions

1. How can the process of system development project among students be facilitated and key processes automated?
2. Can the tool ease and maintain effective communication between all the involved parties and minimize administrative overhead?
3. Can reports be generated by the system to help in decision making?
4. Can the system learn? Is the system intelligent.

1.6 Significance/Justification of the study

The system is important in that it will enable smooth facilitation of undergraduate final year project. It is a technology educational tool that will ease and maintain effective communication between all the involved parties while minimizing administrative overhead and better control of project progression and monitoring.

1.7 Scope

The system Scope will be students of computer science department in Catholic University of Eastern Africa and the administration of the Department including the project coordination team.

1.8 Assumptions

    i.   All Students undertaking system development project have laptop computers

    ii.   It is assumed that internet connection will be reliable

    iii.   Users will be ready to accept and use the system and appreciate its usefulness to them

1.9 Limitations

    i.   The system will not be able to operate without internet connection.

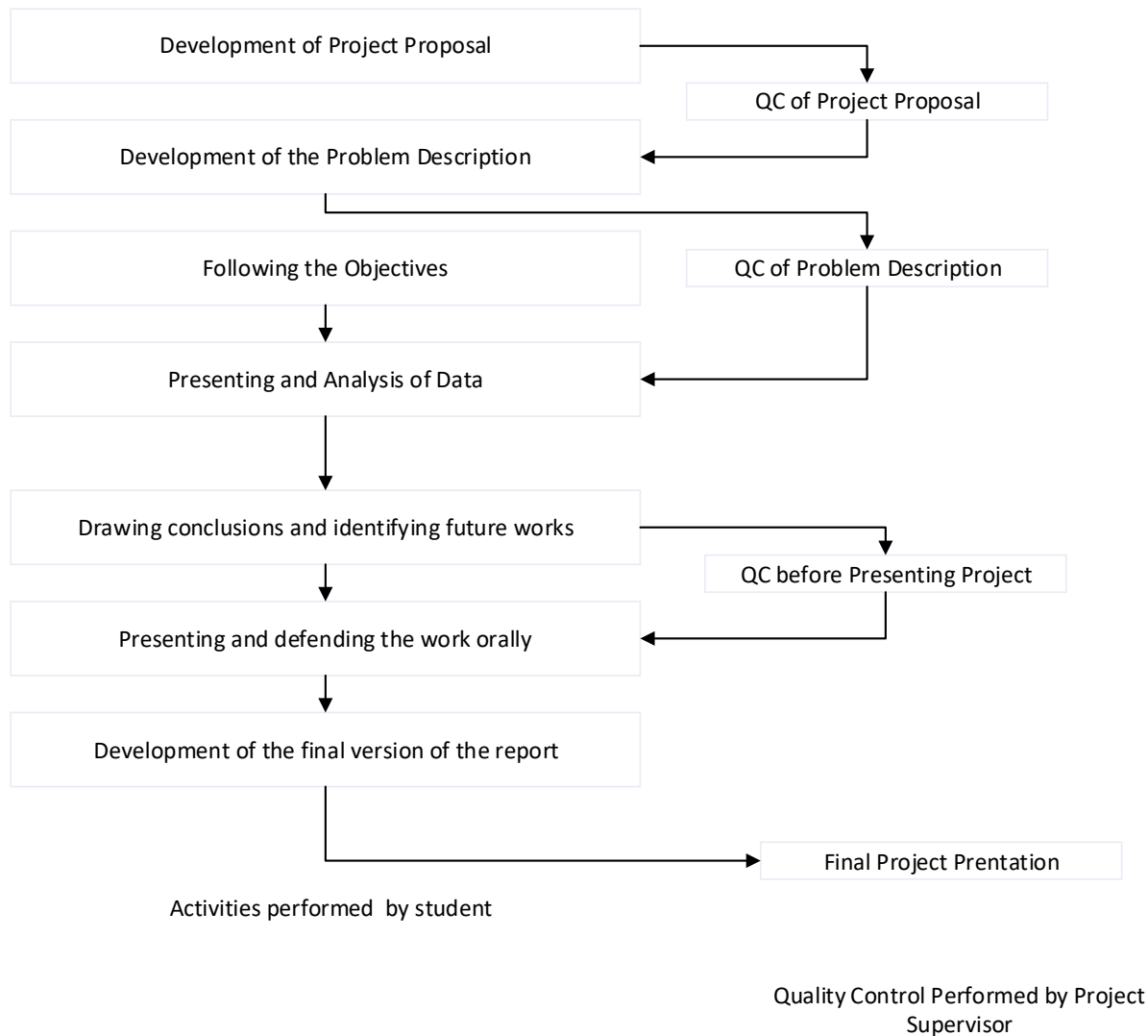   ii.   The system will only be used by users with smartphones or computers

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter analyses various literature that have been written concerning student project progress monitoring. This chapter deals with all related information that is available in details and surveys a portion of published work that provide context for the proposed system. Related Systems are also outlined here.

A dissertation or final year project should be designed to build and test the skills and the knowledge acquired during the education and to prepare and train the student towards becoming a professional. Today, there is a great deal of literature on traditional supervision in the theoretical sense. This literature focuses on issues such as relationships, key features, and the ways in which supervision can be managed and facilitated. The issue of supervision quality is a major problem because of increasing concern about issues of comparability, consistency, and mobility.

There are a number of ways that supervision can be conceptualized or understood as a relationship. One common way that the supervisory relationship can be conceptualized it as a mentoring relationship, in which the supervisor provides academic and personal guidance and social capital to his or her students [2]. This conceptualization of supervision is intended to reduce hierarchical and power differences between supervisor and student and to place the focus on knowledge transfer. In an academic context, the supervision of a final year or dissertation project is a set of stages. Each stage has specific objectives and learning outcomes. Author in [3] have proposed a typical process that has been applied successfully to a wide spectrum of projects. This process or lifecycle is composed of the following seven key steps: development of the project proposal; development of the problem description; following the objectives; presentation and analysis of the data; drawing conclusions and identifying future work; presenting and defending the work orally; and preparation of the final report. These steps are ordered and should be synchronized. The transition from one step to another should be validated by a quality control carried out by qualified persons known as the supervisors and the examiners.

Development of Project Proposal

QC of Project Proposal

Development of the Problem Description

Following the Objectives

QC of Problem Description

Presenting and Analysis of Data

Drawing conclusions and identifying future works

QC before Presenting Project

Presenting and defending the work orally

Development of the final version of the report

Final Project Prentation

Activities performed by student

Quality Control Performed by Project Supervisor

Figure 1 Project Process

All the different actors need to network with each other according to predefined guidelines. At the end of the supervision process, the student is assessed and the whole process is evaluated. As a result, new best practice will be reinforced and others revisited. Such a kind of critical evaluation of the supervisory process can be done by the supervisors themselves and external partners [4]. Depending on the nature of the project and the level of study, some steps may be recurrent and the actors may be doubled.

Despite all efforts, many supervisory issues may appear at any stage of the project lifecycle. For example, the supervisor may face challenges to help his students controlling and conducting their

research or projects independently with minimum assistance and interference. In other circumstances supervisors may find difficulty to build the students' autonomy, reflection, motivation, and self-initiative to control their projects.

A rational balance between the supervisor's and the student's interests and ambition should be found. Without a clear supervision process and administrative tools to monitor the progress and check the conformity of the implementation of the supervision process, supervisory challenges will increase and student satisfaction will deteriorate. Authors in [5] have identified a set of other critical success factors and they have integrated them into an analytical framework that can be applied to either e-supervision or traditional supervision practices. More importantly, they determined that evaluation of supervision should be evidence-based (that is, dependent on how the supervisor's students have achieved their educational goals including course completion and degree attainment). Although the supervisory dimensions of this model are useful, the evidence-based metric does not take into account student involvement in the process. Thus, this model does not fill the gap in evaluation of supervisory success. It also does not take into account external factors, such as candidate selection and admissions procedures and availability of external support and resources for students, which can affect the educational outcomes of students regardless of the supervisory skill or commitment [6]. These findings consolidate our motivation to put in place a collaborative Progress Monitoring System for Student Final Year Project to better control, monitor and evaluate the supervision experience for both student and supervisor. In fact, Progress Monitoring System, is increasingly common in an academic environment as universities are using technology to support learning and feedback. However, some supervisory relationships are primarily or entirely computer-mediated, and some universities have also developed programs that are intended to facilitate the supervision process specifically [7]. It should be noted that the proposed research is limited and primarily of a recent nature (although some work [8] is quite old and it is often of a critically reflective nature rather than being based on a larger qualitative or quantitative study).

2.2 Related Systems

Today, there are new innovative ways of using the open-source virtual learning environment to support the supervision process. Authors in [9] proposed a new online supervision model called PGOURS (Peer and group Online Undergraduate Research Supervision). This model is designed to help supervising undergraduate project research. The PGOURS model involves key project stages and deadlines, online exercises, peer reviews and group supervision, and threaded supervisory discussions [9]. Authors argued that since the PGOURS model was introduced, student learning has been enriched by exposure to a range of topics and methodologies

encountered by their fellow students and face-to-face and individual contact between supervisors and students has been reduced, while maintaining the quality of the support. As a result, student performance and understanding of the research process has improved and the quality of dissertations has increased substantially.

Another similar system called ProjectList is proposed by Loughborough University, UK [10]. This system intends first to manage easily a large list of dissertation projects, allocate them to students with minimum overhead by avoiding as much as possible manual solutions that frequently involve multiple documents and spreadsheets, flurries of emails, and lots of fiddly details to keep track of. Secondly, it aims to simplify the supervision process and bring everything together in a single place by easing remote accessibility to academics and students at any time or place. The ProjectList system is reinforced by another tool called Co-Tutor. This second tool is used to track and record the meetings between students and their tutors. Thanks to this system, tutors can record the details of face-to-face meetings, add any information at any time, have a record of email that has been sent to their tutees and add a copy of any email sent by a student into their record.

Compared to ProjectList and Co-Tutor tools, Cambridge University, has proposed another system to address the reporting issue. The proposed tool is called CamCORS (Cambridge Colleges' Online Reports for Supervisions) and it is a supervision reporting system that allows supervision reports to be read, written, and processed online. Using this system, a supervisor can create report forms for each of his students at the beginning of term, write them up after each supervision meeting, and submit them to the university on the completion of supervisions for the term. Compared to ProjectList and Co-Tutor, this online tool is designed to ease the communication between supervisors and university administrators. It seems that students have no access to this system and therefore they cannot create progress reports or review them before submission.

2.3 Limitations of these Systems

While these different tools attempt to solve supervision issues, save time and maintain an effective and transparent supervision process, they still suffer from different limitations, include

1. They do not federate the tasks and contributions of all actors. Giving priority to some actors at the expense of others does not enhance the learning experience and the quality of supervision for a student.
2. The tools also don't provide archives for the currently done projects hence it is difficult to deny the proposed project of any student on the basis that the project has been done in the university before without providing evidence.

2.3 How the proposed solution will handle these weaknesses.

1. Progress Monitoring System for Student Projects will be driven by student needs
2. The proposed systems will have archives for files and documents for future reference and approvals
3. Deep document extraction to analyze uploaded documents and files.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

Research methodology is defined as the general approach the researcher takes in carrying out the research project. This chapter describes the methodology, data collection and analysis, project resources, workplan and budget.

3.2 The Methodology

The methodology that will be used is Agile System Development Methodology. Agile development model is also a type of Incremental model in that each subsequent release builds on and adds functions to the previous release. Software is developed in incremental, rapid cycles. This

results in small incremental releases with each release building on previous functionality. Each release is thoroughly tested to ensure software quality is maintained. It is used for time critical applications. Extreme Programming (XP) is currently one of the most well-known agile development life cycle model which is used for crafting software within unbalanced atmosphere.

3.2.1 Justification of using agile methodology

   i.   Rapid continuous delivery of useful software which brings satisfaction
   ii. Working software is delivered frequently
   iii. Continuous attention to technical excellence and design
   iv. Regular adaptation to changing circumstances.
   v.   Even late changes in requirements are welcomed.

3.3 Data collection

3.3.1 Source of Data

The main source of data will be Students and Lecturers. Data will also be collected from the administration of Catholic University of Eastern Africa. Secondary source of data was also used in this case.

3.3.2 Data collection Techniques

Tools

   i.   Questionnaires- Structured questionnaires will be used to collect data to a sample number of students and staff about the current way of information dissemination. This will be efficient as it will be carried out simultaneously and is faster enabling collection of first-hand data.
   ii. Interviews- Informal interviews will be contacted among selected students and data captures, this will be carried face to face.
   iii. Observation- Observation will be carried out.
   iv. Document Review – some of important documents will be reviewed and their importance

3.4 Project Resources

3.4.1 Hardware

- Processor speed minimum 1GHZ
- Ram Minimum 1GB
- Hard disk minimum 20GB

3.4.2 Software

- Operating system(any) with Browser(any)
- Xampp
- Microsoft Word
- Visual studio code, sublime, Notepad++ (code editors)

3.5 Project Schedule

Activity	Dates	Duration
Feasibility Study		days
Project Proposal		days
Revision of Proposal		days
Analysis		days
Design		days
Development		days
Testing		days
Implementation		days
Documentation		days

Table 1 Project Schedule

3.6 Project Budget

Item	Costs
Hardware	
Laptop computer	Ksh 35000(in possession)
Software	
Microsoft Windows Operating System	Ksh 10000(in possession)
Microsoft Word 2007	Ksh 5000(in possession)
Other Costs	
Printing	Ksh 500
Miscellaneous	Ksh 500
Total	Ksh 60000

Table 2 Project Budget

REFERENCES

[1] Baptista, A. V., "Challenges to doctoral research and supervision quality: A theoretical approach", Procedings of a Social and Behavioral Sciences Pages 1-15, 2011.

[2] Manathunga, C., "Supervision as mentoring: the role of power and boundary crossing", Studies in Continuing Education, 29 (2), 207-221, 2007.

[3] Mikael Berndtsson, Jorgen Hansson, Bjorn Olsson, and B. Lundell, "Thesis Projects: A Guide for Students in Computer Science and Information Systems", Springer-Verlag London Ltd; 2nd Edition, ISBN-10: 1848000081, 25 Oct 2007.

[4] Firth, A., & Martens, E., "Transforming supervisors? A critique of post-liberal approaches to research supervision", Teaching in Higher Education, 13 (3), Pages 279-289, 2008.

[5] Nulty, D., Kiley, M., & Meyers, N., "Promoting and recognising excellence in the supervision of research students: an evidence-based framework", Assessment & Evaluation in Higher Education, 34 (6), Pages 693-707, 2009.

[6] Buttery, E. A., Richter, E. M., & Filho, W. L., "An overview of the elements that influence efficiency in postgraduate supervisory practice arrangements. International Journal of Educational Management, 19 (1), Pages 7-26, 2005.

[7] Stacey, E., & Fountain, W., "Student and Supervisor Perspectives in a Computer-Mediated Research Relationship", Proceedings of the Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education, pp. 519-528, 2001.

[8] Paliktzoglou, V., & Suhonen, J., "Part-time online PhD reflection: train of thoughts". Procedia Computer Science, 3, 149-154, 2011.

[9] Kay MacKeogh, "Using Moodle to Support Peer and Group Online Undergraduate Research Supervision", EdTech 2008, the Ninth Annual Irish Educational Technology Users' Conference, 23 May 2008.

[10] Loughborough University, "ProjectList information site", retrieved from: http://projectlist.lboro.ac.uk/