Faculty of Computer Science and Information Technology

SAKURA MOBILE APPLICATION (SMApp)

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ABSTRACT

Nowadays, many organisation prefer to use the mobile application to manage their data. It is preferable as it has more advantages compared to a manual approach that need a lot of paper resources and time-consuming. Currently, Sakura Inventory Management System is using a manual approach to keep and manage their data. Therefore, the purpose of this Sakura Mobile Application (SMApp) is to apply the mobile application to their organisation. This application able to maximise the productivity of the staff in the organisation since it can be used to automate the workflow of reservation item and reservation approvals. The SMApp features such as- reservation for lending items, view the reservation of lending items, make defect report, check reservation status, manage user, manage items and generate report of reservation items. With the help of this mobile application, the user can apply for reservation items anytime and anywhere using their own mobile device. The advantage of this application is there is no necessity for the user to manually fill in the reservation of lending items form and waiting to get the approval from the staff.

ABSTRAK

Pada masa kini, banyak organisasi lebih suka menggunakan aplikasi mudah alih untuk menguruskan data mereka. Ia lebih baik kerana ia mempunyai lebih banyak kelebihan berbanding dengan pendekatan manual yang memerlukan banyak sumber kertas dan memakan masa. Pada masa ini, *Sistem Pengurusan Inventori Sakura* menggunakan pendekatan manual untuk menyimpan dan menguruskan data mereka. Oleh itu, tujuan *Sakura Mobile Application (SMApp)* ini adalah untuk menerapkan aplikasi mudah alih kepada organisasi mereka. Aplikasi ini dapat memaksimumkan produktiviti pentadbir dalam organisasi kerana ia boleh digunakan untuk mengotomatisasi aliran kerja item tempahan dan kelulusan tempahan. Ciri-ciri *SMApp* seperti tempahan untuk barangan pinjaman, melihat tempahan barangan pinjaman, membuat laporan kecacatan, menyemak status tempahan, menguruskan pengguna, menguruskan item dan menguruskan laporan urus niaga tempahan. Dengan bantuan aplikasi mudah alih ini, pengguna boleh memohon untuk item tempahan bila-bila masa dan di mana sahaja menggunakan peranti mudah alih mereka sendiri. Kelebihan aplikasi ini adalah tidak ada keperluan bagi pengguna mengisi borang tempahan secara manual dan menunggu untuk mendapatkan kelulusan daripada pentadbir.

CHAPTER 1: INTRODUCTION

1.1 Introduction

Information technology development today resulted in a growing number of internet users. Easy access to the internet makes it a media presentation of data to both individuals and institutions. Data implementation phase begins with the system requirement analysis. It is an objection is to get the proper system specification (Rajendra et. al, 2013).

Sakura Mobile Application (SMApp) is been proposed to replace the current normal system (paper-based) into a digital application (mobile application). SMApp has two (2) categories of access rights. There are students, and staff. The student will apply reservation items online without the need to go to the office to do the manual reservation. Next, students also can view the reservation status. The student also can make a defect report and give feedback by using this proposed mobile application. Besides that, staff will involve in add, edit and delete of item records, update the reservation items status whether approved or rejected, prepare the items, manage user (i.e. add, edit and delete) and generate the report.

This new application is making ease of the process of reservation and data management run efficiently. By having SMApp, we can conclude that every process happens between students and staff become much better and productive.

1.2 Problem Statement

Currently, the current system use in Sakura College is the paper-based system where students fill in the form manually at the Sakura's office before can be submitted to the staff during office hour. Due to class schedule very pack, it is quite difficult for students to make a reservation. In term of borrowing items such as Public Address system, chair, and table for event purposes, students need to fill the different form based on items category.

Other than that, regarding the process to lend items, the usual problem occurs is to check the availability of the items. The process of borrowing procedures is slow because the staff needs to refer to the many files of the details of the item to check the availability of the items before the user can entirely lend the items based on their needs. There is no specific platform to save the item details and keep track of the lending items process. Next, using the manual system is not efficient because students need to go to the office every day or every time to check whether their reservation is accepted or rejected.

To manage the items information, the staff will add, edit and delete the info into the log system (i.e. excel file), manually. It is lack of efficiency, functionality, no specific database to keep data items and inefficient in retrieving data. The manual system has limitation function whereby it is only focused on borrowing the items. There is no specific database to save the product details and keep track of the lending items process.

1.3 Aims and Objectives

This project aims to develop a mobile application which calls SMApp to reduce the problem in reservation items process specifically in Sakura College. Based on the problem statements stated beforehand, the objectives of this project are as follows:

1) To enable staff to manage items data and keep track of the reservation process.
2) To design and develop a mobile application system for a student at Sakura College to do an online reservation for the items.
3) To evaluate the usability of this mobile application to student and staff.

1.4 Methodology

The main methodology that is used in this proposed project is Rapid Application Development (RAD). The key benefit of the RAD approach is fast project turnaround and focus on minimize development time and maximizing progress (Yulianto & Layona, 2017). Due to this project will be developed in a short period, which is roughly 5 to 6 monthly, thus this methodology is selected. This Rapid Application Development also gives an accurate measure of progress and communicate in real time on evolving issues or changes.

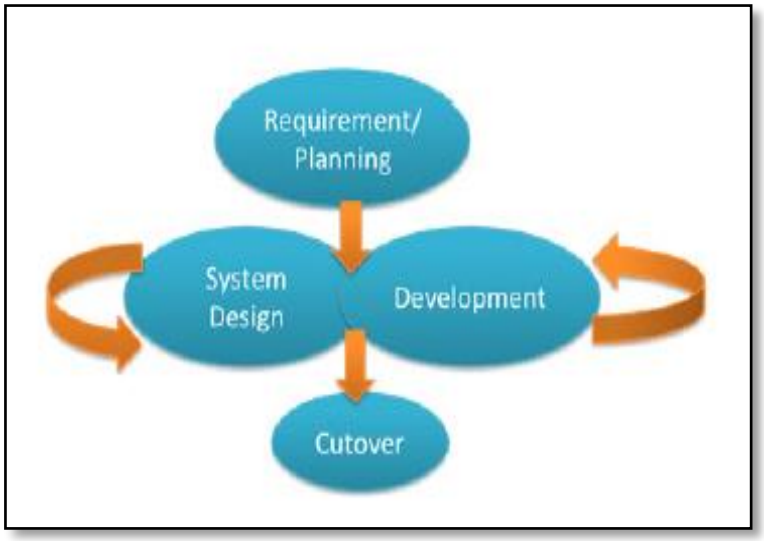

Figure 1. 1 Rapid Application Development (Yulianto & Layona, 2017)

1.4.1 Requirement Planning Phase

The beginning phases in Rapid Application Development is Requirement Planning Phase. In this phase, the project developer needs to determine project scope, constraints, objectives and system requirements need to propose in this project. The questionnaire is going to be conducted to obtain the requirement needed in this project.

1.4.2 System Design Phase

Once the project is scoped out, it is time to do development, building out the user design through various prototype iterations. This phase is known as the system design phase. System Design Phase is a continuous interactive process that allows users to understand, modify and eventually approve a working model of the system that meets requirements. Elements that's a need to consider such as the position of the button, colour of the interface and size of wording. During this phase, user work hand in hand with the developer to ensure their needs are being met at every step in the design phase to ensure it meets their expectations.

1.4.3 Development Phase

Once the basic user and system design have begun, the development phase is where most of the actual application coding, testing and integration takes place. The developer needs to produce a successful and fully functional prototype. The prototype is not successful when there defect and error detected. The developer will return to user design and redesign back the prototype. Along with the user design, the rapid constructions phase is repeated as often as necessary, as alterations are made to meet the need of the project. The complete prototype needs to show to end users so that the developer will get the feedback whether end user satisfied with the prototype or not.

1.4.4 Cutover Phase

When the complete prototype is a success and meets all the user needs, it will move to the Cutover Phase. This is the implementation phase where the end-product goes to launch. Data conversion, testing, and changeover to the new system as well as user training are involved in this phase. All final changes are made while the developer and user continue to look for bugs in the system. For this proposed project, SMApp must fully functional which means that it successfully records all the lending process and manage all the data items properly. As a result, the new mobile application system is built and delivered.

1.5 Scopes

This mobile application system is proposed to be used by students and staff of Sakura College. This application as a replacement for the current system (paper-based) in managing the items and lending system process.

The main function of having this mobile application system, the students can easily make an online reservation to lend the college's asset. This mobile application can be used at any time and from anywhere, so students will do their reservation without having any constraints such as office close after office hour or the student not physically in the campus compound.

Besides that, this mobile application system also will ease for staff to keep track of the lending items.

1.6 Significance of Project

This mobile application of SMApp has the potential to solve the current problems that occur by improving the current lending items reservation process and provide better items management. Using paper-based to keeping the data is hard to manage and it is not efficient enough as the number of the item will increase and tracking the lending process becomes a hassle. In the presence of this proposed mobile application, students do not need to apply lending items manually and staff also can manage all the data efficiently.

1.7 Project Schedule

The project schedule is a listing of a project's milestones activities, and deliverables usually intended to start and finish dates. In completing this final year project, all the work and progress

will be done throughout the first and second semester of the academic year of 2018/2019. The Gantt Chart of project schedule for this project can be seen as in Appendix A.

1.8 Project Outcome

The main project outcome is a mobile application system that able to allow students to do online reservation items, check the reservation items status, make a defect report and give feedback can be done through this application. This mobile application capable of keeping data and information about the asset. The staff at the office also can record the transaction of withdrawal and return items by the student. The staff is able to view the reservation of lending items, update defect report status, record the transaction of withdrawal and return items, update the lending items reservation status, manage user, manage items and generate the report. This system also gives benefits especially to the staff of Sakura College as they can manage all data efficiently.

1.9 Project Report Outline

Chapter 1: Introduction

This chapter introduces the content of this project briefly. It's consist of project title, introduction, problem statement, objectives, methodology, scope, the significance of the project, project schedule and expected outcome. For the methodology section, Rapid Application Design (RAD) has been chosen as the type of method use and the right way to develop the project. For the significant project, it describes how the proposed system contributes to technology and give benefit to people. Gantt chart is used in the project schedule to describe the project flow.

Chapter 2: Literature Review

This chapter is about the journals, books and some other resources are discussed. It also discusses the weaknesses of the existing system and how the proposed system can improve it.

Chapter 3: Requirement Analysis and Design

In this chapter, it will discuss briefly the methodology Rapid Application Design (RAD). Requirement analysis, use case diagram, sequence diagram, class diagram, activity diagram, wireframe and others are discussed as well.

Chapter 4: Implementation

In this chapter, all work such as programming, design interface, testing on the prototype and its result will discuss.

Chapter 5: Testing

In this chapter, functional testing, non-functional testing and usability testing were conducted and its result will discuss.

Chapter 6: Conclusion and Future Work

This chapter will conclude the overall of the project. Besides that, the future works of the proposed system will be discussed in this system.

CHAPTER 2: LITERATURE REVIEW

2.1 Overview

This chapter will provide a description of three existing systems and one mobile application which has been studied to look at their functionalities, technologies, user interface design, and usability. Thus, an analysis is done to compare the features of each system and the proposed system. This chapter contains the research mode on the development of the paper-based system towards mobile application system. All the information from this research were retrieved from the journals, the Internet and the existing system.

2.2 Background Study

Nowadays, technology is evolving from time to time in order to build a better system or application. Currently, Sakura Inventory Management System is a manual approach to manage their data. All data are managed using paper-based which is the traditional method. The uses of technology increase rapidly and cause more organisation to prefer to use online information system in their business or management. It helps their organisation to store and organize the data. Besides that, it will help the performance of organisation operation as they can retrieve the data easily and record all the lending process.

However, the paper-based approach has a few drawbacks compared to the online system. The paper-based approach is costly because it used a lot of paper and also require the organisation to figure out how to organize the paper document based on their category. In order to keep track of paper document and information, the paper-based approach is needed more time and slow down the performance of the organisation. In conclusion, using the online system is more