UNIVERSITI TEKNIKAL MALAYSIA MELAKA

DEVELOPMENT OF LIBRARY BOOK LOCATION TRACKING APPLICATION USING XAMARIN SOFTWARE

This report is submitted in accordance with the requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor of Electronics Engineering Technology (Telecommunication) with Honours.

by

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UNIVERSITI TEKNIKAL MALAYSIA MELAKA

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Tajuk: DEVELOPMENT OF LIBRARY BOOK LOCATION TRACKING APPLICATION USING XAMARIN SOFTWARE

Sesi Pengajian: 2021

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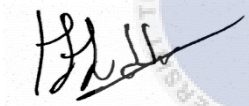

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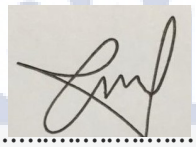

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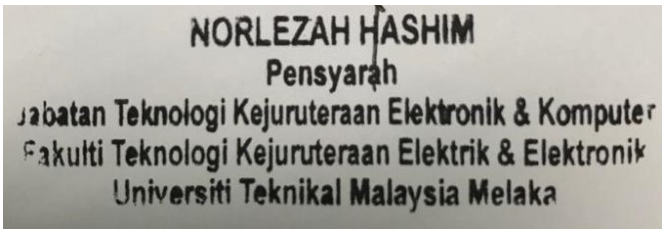

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I hereby, declared this report entitled DEVELOPMENT OF LIBRARY BOOK LOCATION TRACKING APPLICATION USING XAMARIN SOFTWARE is the results of my own research except as cited in references.

Signature: .....

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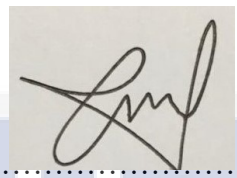
Date: 8/3/2021

APPROVAL

This report is submitted to the Faculty of Electrical and Electronic Engineering Technology of Universiti Teknikal Malaysia Melaka (UTeM) as a partial fulfilment of the requirements for the degree of Bachelor of Electronic Engineering Technology (Telecommunication) with Honours. The member of the supervisory is as follow:



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ABSTRAK

Pada masa kini, perpustakaan adalah tempat yang paling utama bagi semua orang terutama bagi pelajar kerana di perpustakaan terdapat pelbagai sumber maklumat yang diperlukan oleh pengguna. Di perpustakaan terdapat banyak sangat koleksi buku di setiap rak. Walaupun buku-buku tersebut disusun mengikut kategori, tetapi untuk mencari lokasi setiap buku memerlukan masa yang lama kerana di kawasan perpustakaan mempunyai ruang yang besar dan menyukarkan pengguna terutama bagi para pelajar untuk mencari buku yang diperlukan. Untuk mengatasi masalah ini, ia memerlukan beberapa sistem yang dapat membantu pengguna untuk menentukan lokasi buku dengan tepat dengan cara mencari tajuk buku. Oleh itu, tujuan projek ini adalah untuk membangunkan sistem pengesanan lokasi buku di perpustakaan menggunakan applikasi. Hasil daripada projek sistem pengesanan lokasi buku perpustakaan, aplikasi ini akan dikembangkan dan dibuat dengan menggunakan perisian Xamarin dan aplikasi android di mana ia dapat mengesan kedudukan buku di kawasan rak buku. Akhir sekali, untuk kesimpulan aplikasi ini dapat membantu pengguna untuk mengesan kedudukan buku dengan mencari nama buku dan dapat meningkatkan aplikasi ini untuk kegunaan masa hadapan.

ABSTRACT

Nowadays, the library is the most important place for everyone especially for students because in library there have a various source of information that are required for the user. In library, there have a lot collection of books on every shelf. Even the books are arranged according to the category, but for finding the location of each book is takes a long time because in library area, there have a huge space and makes it difficult for the users especially for the students to find the book that are required. To overcome this problem, it needs some of the system that can helps the user to precisely location of books by search the title of books. Therefore, the purpose of this project is to develop a system of library book location tracking by using application. As a result of the project of library book location tracking system, this application will develop and create by using Xamarin software and an android application where it can track the position of book at bookshelf area. Lastly, for the conclusion of this application can help the users to track the position of books by search the name of books and can upgrade this application for the future use.

DEDICATION

I dedicate this project report to my beloved parents, my supervisor and my BEET classmate. A special thanks to my father Mr. Sariman Bin Tasmin and my mother Mrs. Jamilah Bini Awang who always give me courage and being support my idea to do this project. Furthermore, I would like to say thank you to my supervisor, Mrs Norlezah Binti Hashim for the guidance, advices, encouragement, inspiration and attention given throughout the day for development of my final project and writing this report. Lastly, I would like to say thank you to my BEET classmate that who always support me to complete and developed this project.

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INTRODUCTION

1.0 Introduction

This chapter is focus about the creation of the frameworks on this project. Basically, this chapter is including about the objectives that needed to achieve by the researcher. Furthermore, in this chapter also includes about the main information such as research background, problem statements, objective of this study and scopes of works.

1.1 Research Background

The research of this project is about "Library book location tracking application using Xamarin Software". This system will help the users to easily find the book's location in the library through the map in applications. The library is a comprehensive list of information resources that are accessible to the public from various communities, especially students. Libraries usually have a large collection of materials and require good organization of books and make it easier for users to find specific books. Although the library has a large collection of books, finding a book is one of the problems.

Since all the books are arranged according with categories, the location of book must be identified for user gets to know where some of the book category are placed. This is become a main issue especially for the students for finding the book and waste of time. Under this

situation, there needs to find the solution that user can specifically find the location of each books directly by using an application. Thus, such a technology is required that can access the information in library efficiently. It should be easy to use and can tracking the location of books. This information can be accessed the material for only from the interfaces that present within the library. While a reader might use the knowledge from it to quickly locate the book's position. If the library is big, the maps that are showing in the configuration are very complicated and ask for help to the library staff.

To overcome this problem, the method that are used to develop this project is using an android application. This system includes functionality to find and track a book, access library services and update information in real time. This provide the interfaces for the library users and the common user can quickly get the details information from interface of the android applications.

1.2 Problem Statement

The problem that are faced for the user is having a problem to find the specific books they are need because there have a lot and large of bookshelves in library. Sometimes, the books in library bookshelves is arranged based on the category. Because of that, it can make the students spending more time and need some effort to find the books they are require. Furthermore, some of the books that are required for students are not in the systems because of lacks of system to update the new books. Next, Wide Library administration requires quality. The administration gets more complicated and dynamic as the Library becomes through.

Lastly, the location of the books sometimes is uncertain because of there have some of students are not responsible for placing the books on the proper bookshelf.

To overcome this problem, the solution that are proposed to develop this project is create an applications of library book location tracking system by using android application. This developed project can help the users to find a particular book more easily in the library through an android application. Furthermore, this system also enabled to the track the locations of books at bookshelf by using an application. Lastly, this system will create and developed by using simulation of Microsoft Visual Studio (Xamarin Software) and android Xamarin.

The libraries are used to store books which need a process to navigate a specific book with different information. This library system is an interface that can enables the users to access the details information about library for example find, add or remove, and update chosen books and other materials. Furthermore, the user can get know where the particular book by searching the name of the book and click "OK". Next, the user also can access the list information of books according to their category. This proposed system will help to save the time for the user as they don't need to find the particular book in every shelf and every row.

1.3 Objectives

The main objectives of this project are:

a) To develop the system for library book location tracking using android application.

b) To analyse the developed applications in term of its functionality.

1.4 Scopes of Projects

This project is about software developments that are used to create an android application of the system by using Microsoft Visual Studio 2019 (Xamarin Software). This project will cover on the software part, where it is including about the design of projects, coding and develop an application by using android.

To develop this project, the researcher will use the software of Microsoft Visual Studio (2019). Furthermore, in this software, the researcher will develop and create this application by using android Xamarin app.

1.5 Thesis Outline

This report consists of five chapters which are include of introduction, literature review, methodology, results and discussion and lastly a conclusion and recommendation. Each of this chapter will be discuss depends with own aspects that are related to the projects.

Firstly, is about chapter one. Chapter one is the introduction about the project or case study. In this chapter, it consists of research projects, problem statements, objectives, and scope of projects. All of the summary information that are related for this project will be discussed and presented in this chapter.

Next, it will proceed to chapter two which is literature review. In this chapter, it will do the research about the previous studies and case study that are related to projects. This chapter is discussed about the approaches and also the methods that are used from other researcher in

previous studies of projects. This is important to analyse the comparison of strength and weakness that can be used as the guidelines to develop about the related projects. The own idea that are proposed from related project can also justified in this chapter.

Furthermore, for chapter 3 that are focused on the methodology and approaches about the related projects. In this chapter, it will be discussed about the flow charts of projects, the software and hardware that are used, how the process are work and lastly about how to development and implement the projects.

Moreover, chapter four is present about the results and discussion. For this chapter, it will show about the function and output results of the projects. Meanwhile, for discussion part is about analysis of result which is the condition before and after results. Lastly, for the chapter five is about conclusion and recommendation. In this chapter, it will explain about the summary of the projects and give some suggestion and recommendation for the future to improve about the project.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter will discuss about the literature review section with the primary purpose being to considerably study various experimental studies an initiative that have been successfully carried out in this field of analysis by different researchers. The objectives of this literature review will be discussed about all the method that are proposed to developed the project of library book location tracking system from other researcher. The studies and research that are approach should provide the methods of this project depending on the literature analysis.

2.1 Previous Related Work

Previous related work is about the similarity project that have been developed from previous researcher by using different methods. The projects that have been developed by previous researchers have the advantages and disadvantages that can be used as a reference to improve the project and change some of methods that are used to make it better. Furthermore, the purpose of previous related work is to study about how to develop the projects by using different method. There are several of similarity projects that can help as a reference based on the research and case study.

2.2 "Book Tracking Application in Android for library by using GPS system" from Akhil Choudari, Sankalp Joshi, Akshay Bembalkar, Nainesh Marathe and L.J Sankpal

This project has been developed by Akhil Choudari, Sankalp Joshi in 2013 and consists of 3 Engineer. According to the researcher (Choudari et al. 2013), this book tracking application is the idea of support the physical reality with an extra information sheet. The project was built based on the creative by used GPS (Global Positioning System) in library to navigate the people in library. This will require the library to live any time of day or season by using smartphone. Furthermore, it also can update the data that are collated by librarian upon the introduction of new books that would provide the raw material for producing layers of graphical and multimedia content by using compatible smartphone. Next in this project, there have a system architecture that are used as a method to develop this project. To develop this project, the researcher divided the process into two parts which is input process and the output process. The user characteristics as the input and module characteristics as an output. The system architecture for this project is shown in figure below.

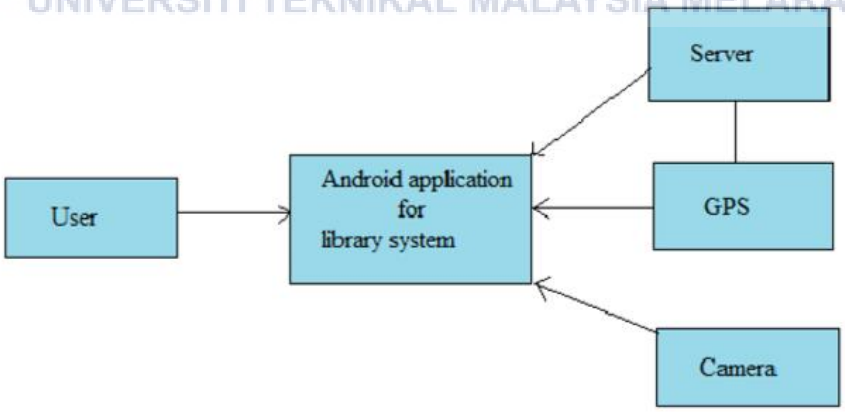

Figure 2.1: System Architecture