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DEVELOPMENT OF ANDROID-BASED PARCEL TRACKING SYSTEM FOR UNIVERSITI TEKNIKAL MALAYSIA MELAKA (UTEM)

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UNIVERSITI TEKNIKAL MALAYSIA MELAKA
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This report is submitted in accordance with the requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor of Computer Engineering Technology (Computer System) with Honours.

by

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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 Electronics Engineering Technology (Computer System) with Honours. The member of the supervisory is as follow:

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ABSTRAK

Projek tahun akhir ini adalah sistem berasaskan perisian untuk melaksanakan Pembangunan Sistem Penjejakan Parcel Berbasis Android untuk UTeM yang akan disambungkan ke pangkalan data. Perisian ini dikembangkan untuk membantu meningkatkan kecekapan surat UTeM dalam menangani bungkusan penerima dari orang yang menghantar dan memerlukan masa untuk menyelesaikan semua data bungkusan penerima dalam pangkalan data. Objektif pengembangan proyek ini adalah untuk mengembangkan sistem pelacakan bungkusan UTeM berdasarkan aplikasi Android dan sistem dapat mengambil data dari pangkalan data dan menampilkan data melalui aplikasi Android. Aliran proses untuk mengembangkan projek ini adalah mengikuti carta alir yang dibuat untuk projek ini adalah untuk mengetahui bagaimana aliran aplikasi sistem penjejakan bungkusan. Selain daripada itu, akan membuat rajah kes penggunaan dan rajah aktiviti untuk mengetahui hubungan atribut yang berkaitan dalam projek ini. Untuk pelaksanaan proyek ini, perangkat lunak yang memilih untuk mengembangkan proyek tersebut adalah Android Studio, pangkalan data XAMPP dan halaman web HTML. Untuk platform Android Studio akan digunakan versi 4.0 sebagai platform utama projek ini. Sementara itu, HTML akan menjadi laman web admin dan hubungan antara laman web Android dan HTML adalah pangkalan data XAMPP. Adapun hasil yang diharapkan hasil dari proyek ini dapat dicapai dengan objektif dan sistem penjejakan bungkusan berfungsi seperti perencanaan.

ABSTRACT

This final year project is a software-based system to implement the Development of Android-Based Parcel Tracking System for UTeM that will be connected to the database. This software is developed to help improve the efficiency of mail UTeM in handling the receiving parcel from the delivery guy and takes time to finished key in all the data of the receiving parcel in the database. The objective of developing this project is to develop UTeM parcel tracking system based on Android application and the system can retrieve the data from database and display the data via Android application. The process flow in order to develop this project is follow the flowchart create for the project is to know how the parcel tracking system application flow. Other than that, going to create the use case diagram and activity diagram to know the relationship of the attribute related in this project. For the implementation of this project the software that choose to develop the project is Android Studio, XAMPP database and HTML web page. For the Android Studio platform will be used the version 4.0 as the main platform of this project. Meanwhile, the HTML will be the admin web page and the connection between Android and HTML webpage is XAMPP database. As for the result expected the outcome of this project is achieved with the objective and the parcel tracking system is functioning as planning.

DEDICATION

I dedicate this thesis to my beloved parents who always there, supervisor for their guidance and encouragement, and my fellow friends who help me a lot and support to complete this final year project.

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I am using this chance to express and extend my gratitude to whoever who had supported me throughout my Final Year Project. I am grateful for their invaluable constructive advices, guidance and ideas during the project. I would also like to thank DR. SUHAILA BINTI NAJIB my supervisor who has guided me most of the time and supported me throughout the project in UTeM.

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ABBREVIATION

ADT	-	Android development tools
APK	-	Android application package
DHL	-	Dalsey, Hillbom and Lynn
GB	-	Gigabit
GPS	-	Global positioning system
IDE	-	Integrated development environment
IoT	-	Internet of things
JDK	-	Java development kit
LBS	-	Location based service
MB	-	Megabit
NFC	-	Near - field communication
RAM	-	Random access memory
RFID	-	Radio - frequency identification
SMS	-	Short message service
XAMPP	-	Cross-platform (X), apache (A), mariadb (M), php (P) and perl (P)

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

The introduction discusses about the project background, problem statement, project scope and objective of the project. This section will explain about the overall view to guide the development of software development of parcel tracking system for UTEM by displayingthe tracking information in an application on smartphone.

1.1 Background

The Universiti Teknikal Malaysia Melaka (UTeM) mail unit is a place that where most student and staff collect their online purchased parcel. It is an office where they received all the parcels send to the FTK UTeM mail office address. Once the parcel is received by the mail staff, the mail staff will start key in the receiving parcel tracking number by scanning the parcel barcode, using barcode application and the data from the scanning barcode will directly transferred into the mail system database. From there the mail staff need to key in the data to place the parcel in the rack that provided to put all the parcel received.

The parcel then will be organized based on the student or staff name, gender, race, ID number to detect either the parcel information is a student or a staff, organize by following alphabet from a to z. The way to key in the data to place the parcel in the rack is manually where after scan all the barcode, the mail staff need to manage the parcel placement at the rack by following the alphabet. This way to ease the mail staff to find the parcel of the

student or staff if they provide the tracking number to collect the parcel and system will display where the parcel placed in the rack by alphabet and level number. From that, the student or staff will get the update from the online shopping website that the student and staff make a purchased or the parcel send by the sender. Staff and student know the parcel is successfully received by the mail staff, but the parcel is pending in mail office cause of the staff takes time to key in the parcel received. Student or staff cannot know either the parcel can be collected or not by the day the staff mail received the parcel.

Nowadays, there is many software and application provided to easy tracking parcel either is in progress or received by the receiver. Mostly the software or application provided to track the tracking number is using wireless internet such as wi-fi; cause to connect with the database of the mail system need to have internet connection to get the data. By developing the application of tracking system, the system can be more intelligent and smarter to handle all the parcel received and easier for staff mail and student to track the parcel. Other than that, the purpose of developing the mail tracking system on Android application is to track the tracking number of the parcel that being received by the staff mail either it is ready to be collected or not. The application will display the interface of searching tracking number and if the tracking number being search is displaying the details can be collected, from there the student or staff can make a collection at the mail office. By developing this project can help easier the staff mail work and saves student or staff times without having to go to the mail office.

1.2 Problem Statement

Current system of UTeM Mail unit is not so efficient. Figure 1.1 shows the Facebook page of the UTeM Mail unit. The student only can track their parcel once the mail staff key in the tracking number and update the tracking number by social media which is Facebook

UTeM Mail page. The mail staff will place all the student tracking number and student can check their tracking number parcel by the Facebook posting. Other than that, some of the parcel is already delivered by the delivery guy and received by mail staff. When the student checked their parcel is already delivered and they want to make collection for their parcel in UTeM Mail, the parcel still on pending for UTeM Mail system cause of the mail staff did not complete to key in data to place the parcel in the rack by following the alphabet, gender, race and the student status either staying at hostel or staying outside. Student needs to wait for one day to know either their parcel is received and can be collected or not at UTeM Mail. Some of the data need to be key in manually, and it takes time to key in the data. In that case, this project creates an application for the student to track their parcel completely received by the UTeM Mail staff and their parcel is already placed in the rack and ready to be collected. Besides, to ease the UTeM Mail staff once the data of the parcel is complete and update the completed parcel in the application and student can track their parcel in the application without need to go to UTeM Mail.

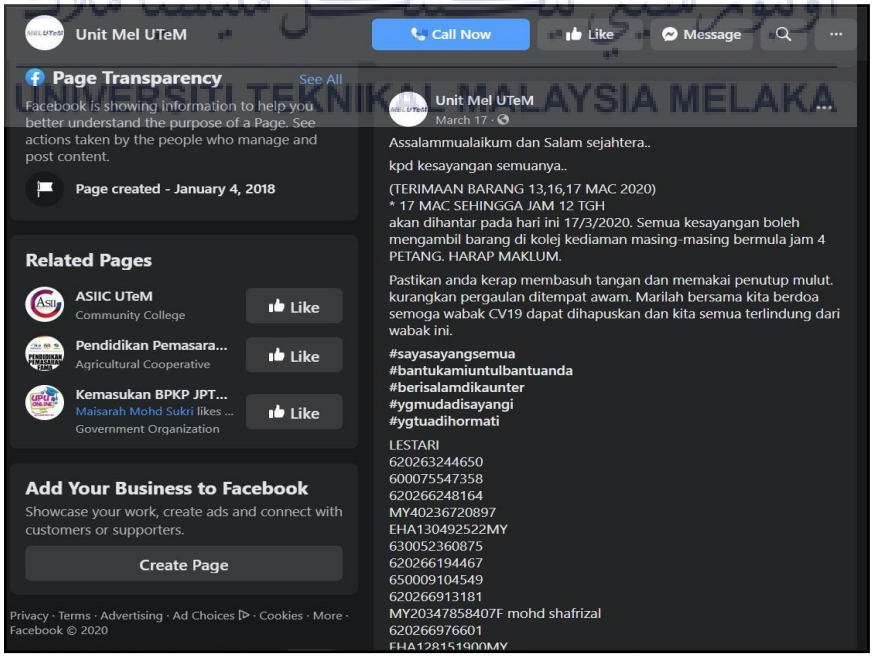

Figure 1.1: Facebook page for update the tracking number.

1.3 Objective

The objective of the project are as follows:

(i) To develop UTeM parcel tracking system based on Android Application.

(ii) To retrieve data from database and display the data via Android application.

1.4 Project Scope

The scope of work for the project includes the following areas:

The parcel tracking system can display the process of the receiving parcel information by the mail staff and update the data of the parcel on the website that have connection to the database. Besides, this system is for student and staff such as lecturer to know about their parcel either is received by the mail staff or the parcel is still onpending to be send by the delivery guy. This system is more like to display the status of the parcel either is already received by the mail staff and can be collected or not. In addition, by developing the application using Android Studio will be used to program and design the interface of the system layout for this parcel tracking system application. To run the test, an Android Studio will be sent the APK file by connecting the smartphone through USB to run the test. Thus, the HTML webpage going to be the system for the mail staff to upload the tracking number into the database. The connection between the website and Android studio is using a database that going to be used to store all the data is XAMPP software that can be stored data on the computers without any access to the internet. The developer can choose either to use android smartphone or Emulator in Android Studio along the testing process.

1.5 Project Significance

This project will be a significant in helping the student and ease UTeM mail staff to be acknowledged on the parcel which being received by the staff mail. This project also will help to reduce and ease the work of UTeM mail staff to update the parcel tracking number once the parcel received by the staff from delivery guy. Thus, by the developing of the parcel tracking system it can save time and can track the tracking number anywhere anytime. The mobile application is user friendly and accessed by the new user such as student and lecturer to track their parcel.

CHAPTER 2

LITERATURE REVIEW

This chapter reviews previous research which have been conducted based on parcel tracking system. The research has been made to gain further information about how the existing mail tracking system works in term of the database.

2.1 Introduction

Development of Android-Based Parcel Tracking System for UTeM is a system will help student to check their parcel by using an apps. It is also will ease the staff in handling and managing the parcel when student comes to collect the parcel. This system works when the student enters the tracking number of their package and the system shows the status of the parcel either have been received by the staff or not. The data will be recorded by the database to shows up the updated info about the package from the admin database connect with the apps. The application software that will be used to implement the mail tracking system is Android Studio software.

2.2 Previous Research of Tracking System

2.2.1 Parcel Trace System.

According to the United States Patent (2001), the parcel traced system was a