UNIVERSITI TEKNIKAL MALAYSIA MELAKA

DEVELOPMENT OF UNIVERSITI TEKNIKAL MALAYSIA MELAKA (UTeM) VEHICLE STICKER REGISTRATION SYSTEM USING HYPERTEXT PREPROCESSOR (PHP)

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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FACULTY OF ELECTRICAL AND ELECTRONIC ENGINEERING TECHNOLOGY

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Tajuk: Development of Universiti Teknikal Malaysia Melaka (UTeM) Vehicle Sticker Registration System using Hypertext Preprocessor (PHP)

Sesi Pengajian: 2018

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This report is submitted to the Faculty of Electrical and Electronic Engineering Technology of UTeM as a partial fulfillment of the requirements for the degree of Bachelor of Computer Engineering Technology (Computer System) with Honours. The member of the supervisory is as follow:

Signature: …….

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ABSTRAK

Tujuan projek ini adalah untuk membangunkan satu sistem yang boleh menguruskan pendaftaran pelekat kenderaan di Universiti Teknikal Malaysia Melaka (UTeM) dengan menggunakan *Hypertext Preprocessor (PHP)* dan *Xampp* untuk menjalankan pelayan *MySQL*. Melalui kajian dan penyelidikan yang dibuat semasa projek ini dijalankan menunjukkan bahawa sistem semasa yang menggunakan sistem fail mempunyai banyak kelemahan. Kelemahan yang terjadi ketika menggunakan sistem fail adalah kurang selamat, kos yang mahal, data lewah, kesalahan manusia dan data yang mudah hilang. Disebabkan kekurangan dalam sistem semasa, projek ini direka untuk menyelesaikan masalah yang berlaku. Projek yang dijalankan mengambil dan menggunakan konsep sistem pengurusan pangkalan data (DBMS) dan merupakan sistem yang berasaskan web. Metod yang digunakan dalam menghasilkan sistem ini mengaplikasikan proses model *Waterfall* yang mempunyai tujuh fasa iaitu fasa analisis, fasa reka bentuk sistem, fasa pelaksanaan, fasa pengujian, fasa penggunaan dan fasa penyelenggaraan. Melalui fasa pengujian yang telah dijalankan, dapat disimpulkan bahawa objektif projek telah dapat dicapai kerana sistem dapat mengurus dan menyimpan data yang dimasukkan oleh pengguna ke pangkalan data. Semua keperluan sistem telah dipenuhi dan semua keputusan pada fasa pengujian telah lulus. Selepas pentadbir menyemak permohonan pengguna, pengguna akan dimaklumkan melalui perkhidmatan pesanan ringkas (SMS) sama ada permohonan mereka ditolak atau diluluskan. Sebagai kesimpulan, sistem ini diharap dapat memudahkan pihak keselamatan di UTeM dan membantu para pelajar dan kakitangan memohon pelekat kenderaan mereka dengan lebih mudah. Selain itu, sistem ini diharap dapat membantu proses memohon kenderaan pelekat berjalan lancar, tidak memakan masa disamping dapat mengurangkan penggunaan kertas.

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ABSTRACT

The purpose for this project is to develop one manageable system for vehicle sticker registration in Universiti Teknikal Malaysia Melaka (UTeM) by using Hypertext Preprocessor (PHP) and Xampp to run the MySQL server. The findings from the researches made during this project shown that the current system which manual system have many flaws. The flaws that happened when using manual system are lack of security, high in cost, data redundancy, human error and easily lost data. Due to deficiencies in the current system, this project is designed to solve all the problems that are happening. The project developed is using and implement database management system (DBMS) and is a web based system. The system implements Waterfall model process as the method to develop the system. The Waterfall model consists of seven phases which are requirement analysis, system design, implementation, testing, deployment and maintenance. Based on the result of the system, the objective of the project was achieved as the system can manage and store data that entered by user into the database. All the system requirements have been fulfilled and all the test result was passed. After admin has check user data application, user will be notified by short message service (SMS) whether their application is rejected or approved. As a conclusion, this system was hoped to facilitate security department in UTeM and to help the students and staffs to apply their vehicle sticker effectively. Furthermore, it is intend that the process of applying sticker vehicle can be process smoothly and consume a little of time and reduce the using of paper.

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DEDICATION

This report is dedicated to my father, who taught me that the best kind of knowledge to have is that which is learned for its own sake. It is also dedicated to my mother, who taught me that even the largest task can be accomplished if it is done one step at a time. To my beloved parents and families, thanks a lot for the love and infinite support that you gave. To my respected supervisor, your kindness, patience, comprehend, tolerance and encouragement are very valuable and precious. To all lecturers and friends that help during the difficult moments, it is something that I cannot repay.

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CHAPTER 1

INTRODUCTION

1.2 Background

Once a year, students and staffs in Universiti Teknikal Malaysia Melaka (UTeM) need to register their vehicles to get the vehicle sticker. This vehicle sticker is compulsory for all students and staffs in UTeM that will allowed their vehicle to enter or to park around University area. Without this sticker, any vehicle cannot be entered to University area unless with permission or exception.

Although UTeM has been established for almost 18 years (since December 2000) but there are still no comprehensive method to manage vehicle sticker registration. Students or staffs need to fill up the form and have to take turns with the long queue to apply the sticker. With the restriction for first and second year students to bring the vehicle, another problem has arisen. To enable them to bring their vehicle, the students had duplicated the sticker. Recently, one of the students whose duplicate the sticker has been suspended for one semester. To register the sticker, photocopy of matric identification is needed. For first and second year students who were restricted to apply the sticker, they had used other people matric identification which are third and fourth year students. It is restricted that one student can only apply one sticker, which means they only can bring one vehicle to the University. But, there are cases that students get more than one sticker and bring more than one vehicle as the security staffs approve their application.

All of the cases of that had been mention above which are duplicating of the sticker, use other's matric identification or redundant application the security staff

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cannot detect it. This is due to large number of students and staffs that apply the sticker. One of the main reasons is because the security department still uses manual system to apply the sticker. Since manual system still utilize paper for the documentation, it will requires more exertion and physical space to monitor paper reports, to discover data and to keep data interest secure. At the point when there are botches make, changes or redresses are required, regularly a manual system need to totally revamp as opposed to simply updated. When utilizing manual system, it is frequently must be composed down and replicated or entered more than once.

Hence, the purpose of this project is to develop one manageable system that will manage vehicle sticker registration in UTeM by using Hypertext Preprocessor (PHP) and Xampp to run the MySQL server. The system that will be developed is a database-based as all the data will be store in systemize storage. Through this, students and staffs can apply the sticker online and go to security department to only collect the sticker if their application is approved. By using the system, the possibility of the redundant data is low and the efficiency of the work can be improved. In addition, it will cut the cost as no more paper will be using to apply the sticker and it will be systematically done.

1.2 Problem Statement

The development of the system came from the observation that made when see many problems occur during sticker registration in UTeM. UTeM still uses manual system to register the vehicle sticker for students and staffs. There were many flaws when using manual system to handle large data such as inconsistency in data entry, redundant of data, miss keying information, lacks of security and duplication of data.

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This project develops to solve the problems mentioned above. These problems need to solve because it can help security staff to manage their work in efficient and make registration of the vehicle sticker process more easy.

1.3 Objective

The objectives of this project are:

(a) To develop one manageable system that solves registration of vehicles manually.

(b) To easy manage data by admin.

1.4 Scope of Project

The scope of this project is to develop one manageable system that solves registration of vehicles manually. It will focus on the software development by using Hypertext Preprocessor (PHP) and it is web-based application.

The scope of user is divided into two which are administrator (security staff department) and user (students and staffs in UTeM). The administrator will have privilege to manage the system and have privilege to view, add, delete, update and edit the data in the system. Meanwhile, the user (students and staffs) have privilege to register their information to the system for applying vehicle sticker.

The limitation of this project is the system will be developing specifically for UTeM.

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CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Literature review is one of the imperative stages in developed this project since it can distinguish the best technique to accomplish the goals of the project. This is because it can recognize issue that happened in the current framework to accomplish the effective framework. At that point, it likewise can know the best programming that ought to be utilized to develop this framework. The studies and researched for this project was gathered from numerous sources for example, books, articles, journals and internet.

2.2 Current System Used in UTeM

Currently in UTeM, the manual system is used to register vehicle sticker. Students and staffs need to fill up the form and make a photocopy of their matric id or staff id, identification card and license card. The process with the current system sometimes take longer time as their application need to be verify by the security staff department. If there are crowd of applicants, it has possibility that one's need to wait for more than hours and this will make their other work delayed.

The Figure 2.1 (a) and Figure 2.1 (b) show the current register form that need to be fill up by student or staff to apply the vehicle sticker.

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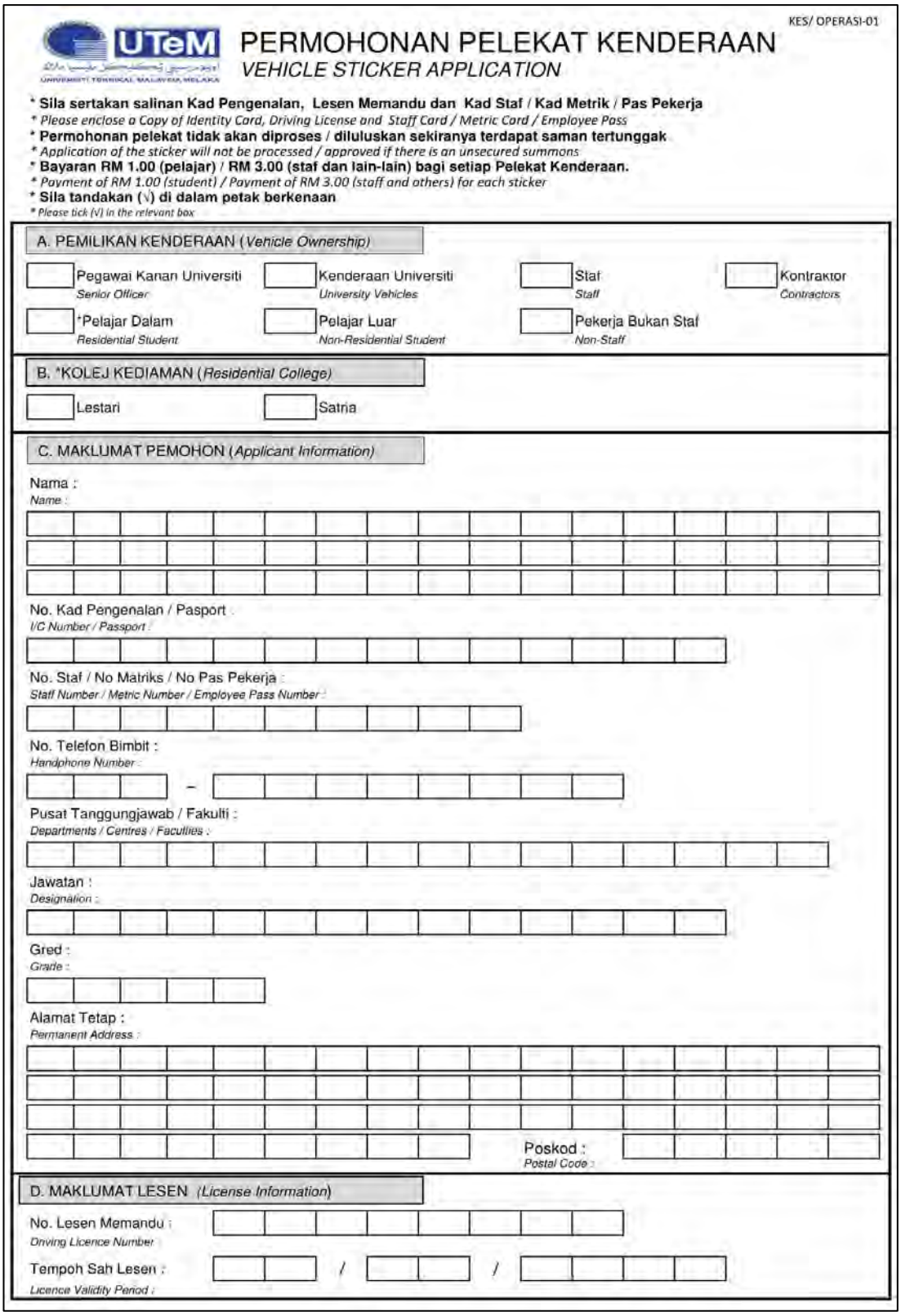

KES/ OPERASI-01

UTeM

PERMOHONAN PELEKAT KENDERAAN
VEHICLE STICKER APPLICATION

* **Sila sertakan salinan Kad Pengenalan, Lesen Memandu dan Kad Staf / Kad Metrik / Pas Pekerja**
* *Please enclose a Copy of Identity Card, Driving License and Staff Card / Metric Card / Employee Pass*
* **Permohonan pelekat tidak akan diproses / diluluskan sekiranya terdapat saman tertunggak**
* *Application of the sticker will not be processed / approved if there is an unsecured summons*
* **Bayaran RM 1.00 (pelajar) / RM 3.00 (staf dan lain-lain) bagi setiap Pelekat Kenderaan.**
* *Payment of RM 1.00 (student) / Payment of RM 3.00 (staff and others) for each sticker*
* **Sila tandakan (√) di dalam petak berkenaan**
* *Please tick (√) in the relevant box*

A. PEMILIKAN KENDERAAN (*Vehicle Ownership*)

☐ Pegawai Kanan Universiti *Senior Officer* ☐ Kenderaan Universiti *University Vehicles* ☐ Staf *Staff* ☐ Kontraktor *Contractors*

☐ *Pelajar Dalam *Residential Student* ☐ Pelajar Luar *Non-Residential Student* ☐ Pekerja Bukan Staf *Non-Staff*

B. *KOLEJ KEDIAMAN (*Residential College*)

☐ Lestari ☐ Satria

C. MAKLUMAT PEMOHON (*Applicant Information*)

Nama :
Name :

No. Kad Pengenalan / Pasport :
I/C Number / Passport :

No. Staf / No Matriks / No Pas Pekerja :
Staff Number / Metric Number / Employee Pass Number :

No. Telefon Bimbit :
Handphone Number :

Pusat Tanggungjawab / Fakulti :
Departments / Centres / Faculties :

Jawatan :
Designation :

Gred :
Grade :

Alamat Tetap :
Permanent Address :

Poskod :
Postal Code :

D. MAKLUMAT LESEN (*License Information*)

No. Lesen Memandu :
Driving Licence Number

Tempoh Sah Lesen :
Licence Validity Period :

Figure 2.1 (a): UTeM vehicle sticker manual form

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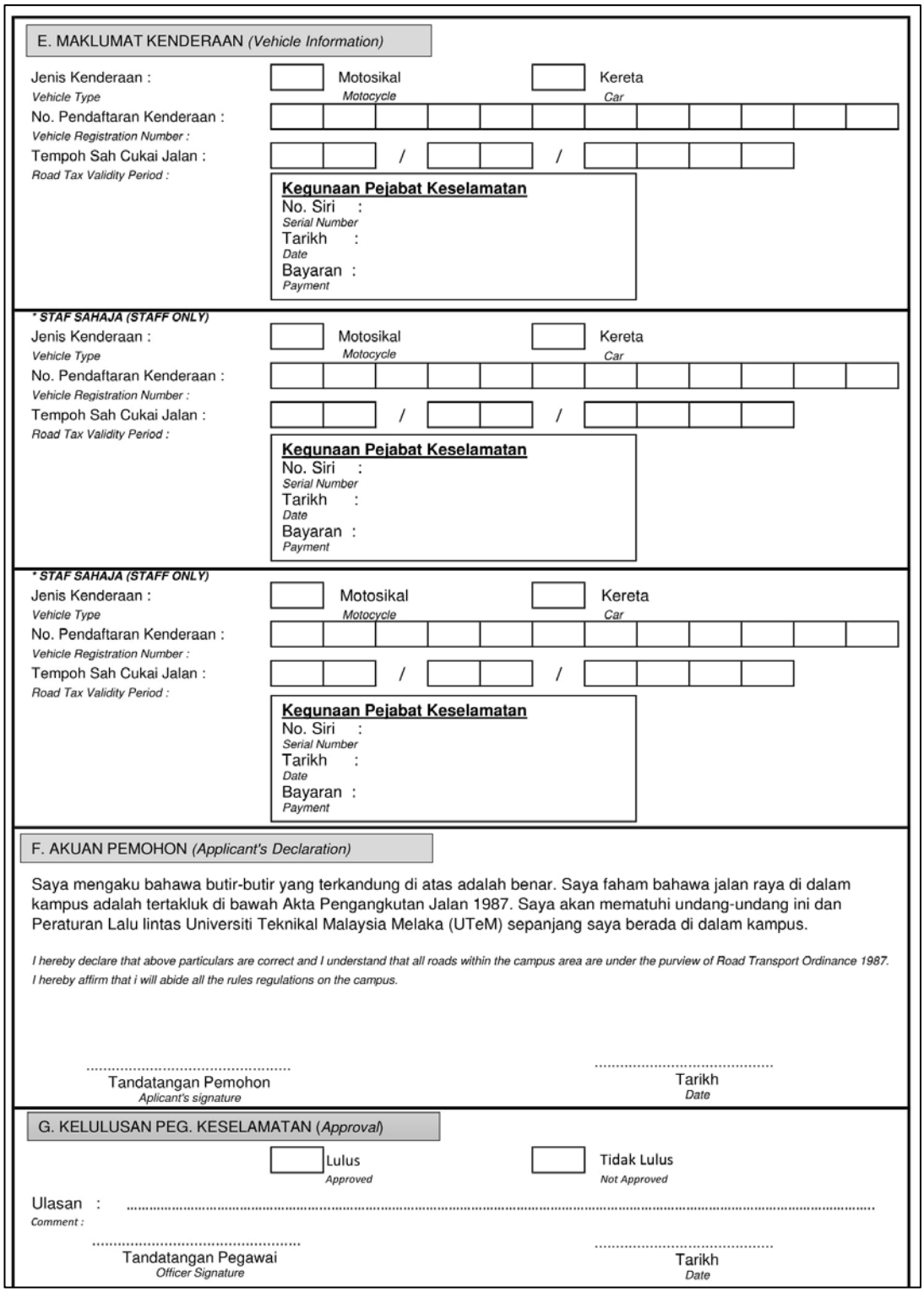

E. MAKLUMAT KENDERAAN *(Vehicle Information)*

Jenis Kenderaan : *Vehicle Type* ☐ Motosikal *Motocycle* ☐ Kereta *Car*

No. Pendaftaran Kenderaan : *Vehicle Registration Number :*

Tempoh Sah Cukai Jalan : *Road Tax Validity Period :* / /

Kegunaan Pejabat Keselamatan
No. Siri : *Serial Number*
Tarikh : *Date*
Bayaran : *Payment*

STAF SAHAJA (STAFF ONLY)

Jenis Kenderaan : *Vehicle Type* ☐ Motosikal *Motocycle* ☐ Kereta *Car*

No. Pendaftaran Kenderaan : *Vehicle Registration Number :*

Tempoh Sah Cukai Jalan : *Road Tax Validity Period :* / /

Kegunaan Pejabat Keselamatan
No. Siri : *Serial Number*
Tarikh : *Date*
Bayaran : *Payment*

STAF SAHAJA (STAFF ONLY)

Jenis Kenderaan : *Vehicle Type* ☐ Motosikal *Motocycle* ☐ Kereta *Car*

No. Pendaftaran Kenderaan : *Vehicle Registration Number :*

Tempoh Sah Cukai Jalan : *Road Tax Validity Period :* / /

Kegunaan Pejabat Keselamatan
No. Siri : *Serial Number*
Tarikh : *Date*
Bayaran : *Payment*

F. AKUAN PEMOHON *(Applicant's Declaration)*

Saya mengaku bahawa butir-butir yang terkandung di atas adalah benar. Saya faham bahawa jalan raya di dalam kampus adalah tertakluk di bawah Akta Pengangkutan Jalan 1987. Saya akan mematuhi undang-undang ini dan Peraturan Lalu lintas Universiti Teknikal Malaysia Melaka (UTeM) sepanjang saya berada di dalam kampus.

I hereby declare that above particulars are correct and I understand that all roads within the campus area are under the purview of Road Transport Ordinance 1987. I hereby affirm that i will abide all the rules regulations on the campus.

..... Tandatangan Pemohon *Aplicant's signature*

..... Tarikh *Date*

G. KELULUSAN PEG. KESELAMATAN (*Approval*)

☐ Lulus *Approved* ☐ Tidak Lulus *Not Approved*

Ulasan : ..... *Comment :*

..... Tandatangan Pegawai *Officer Signature*

..... Tarikh *Date*

Figure 2.1 (b): UTeM vehicle sticker manual form

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2.3 Database and Web-based Application

With the rapid development of technology, the manual system is no longer relevant to be used to handle such a big data. With manual systems, the level of organization is dependent on individuals and this puts a need on organization to run getting ready reliably for staff to keep them prodded and to ensure they are following the correct. It can be incidentally switch points of interest and wind up with irregularity in information section or in manually written requests. This has the effect of causing issues with customer advantage and also making information inadequate be used for declaring or finding designs with data disclosure. Due to the fact of weakness of the current manual system, the system developed is applying the concept of database system and web-based application.

2.3.1 Database Management Systems

A database management system (DBMS) acts as an essential part in most genuine activities that require capacity, recovery and propelled data request. Most programming improvement firms are making and producing a DBMS framework that costs between zero dollars if the DBMS is free and open source, while countless if the DBMS is exclusive (Bassil, 2012). A database is an amassing of related records and is the item proposed to make, extra and manage a database. One side of a database control system is preparing supplements, refreshes, and erases. This all needs to do with placing data into the database. Changes in records portrayal will every now and again be required because of adjustments in query, update, and record activity and characteristic development in the sorts of spared information. A

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social database is a huge spread-sheet that few individuals can refresh simultaneously. The connections among the numerous individual insights spared in a database can be communicated by methods for a few intelligent structures. DBMS are intended to utilize these structures to execute their highlights. The database technique offers various pivotal and sensible advantages to an association.

Sharing records consistently enables new records to be advanced without creating new information documents. In general, less excess and more prominent sharing outcome in less disarray among authoritative units and significantly less time spent settling missteps and irregularities reports. The database approach permits brought together control over records necessities, security directions and uprightness controls. This helps the regular development and trade of actualities frameworks and organizations. Databases are generally utilized as a part of regular daily existence. The relational form of databases shows an absolutely simple method for looking at records based into tables (Li, 2004).

Wang *et al.* (2017) states that Oracle, SQL Server, DB2, Sybase, and MySQL servers are the most generally utilized database in real-time engineering projects, where SQL Server is an famous data storage and data retrieval model with solid unwavering quality, security, expandable and sensible.

MySQL is a free, open-source, multithreaded, and multi-customer SQL of DBMS which has more than 10 million establishments. The base program keeps running as a server that gives various client access to various databases (Bassil, 2012). Pedro *et al.,* (2018), in the paper stated that the

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MySQL database was incredible, snappy, had open source licenses, is available on each ordinary stage and can be easily fabricated. At that point, it is easy to perform basic functions and recover the functions with a touch of learning investment. The first substance content based and graphical interface (MySQL Workbench) client gives an essential strategy to physically request data in the midst of programming development and critical.

Soyemi and Isinkaye (2017) have developed an outline of the web based final year student project management system utilizing Hyper Text Mark-up Language (HTML), JavaScript, Cascading Style Sheets (CSS) and PHP as front-end while Structured Query Language (MySQL) is utilized as a back end. MySQL (back-end programming) gives a database to their hardware prerequisite point at a web-based year-end project management project. The database is in charge of monitoring understudies, lecturers and uploaded projects. It enables students to transfer their completed project to the application database. The MySQL is secure because of the fact that it incorporates a strong information security layer that shields data sensitivity from intruders and also can control any amount of information.

2.3.2 Web-based Application

Web arrangements are progressively being utilized as a part of making applications. Because of the web servers, the web applications have phenomenal access to all clients related with utilizing the web or intranet. The benefits of web applications are it can give highlights to information administration and circulation. Web applications likewise contain simple to-oversee and broadened Graphical User Interface (GUI) that can give records

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to clients more data and propelled highlights, for example: inquiry, verification and storing (Leinonen, 2013).

The potential dangers of hacking students' records via web assaults are minimized through the isolation of the most databases (back-end) and a secondary database (front-end). Submitted information is spared in the front-end database on the server side. As a second step, data are exchanged to the most back-end database with respect to all the students' records. The information exchange is two-way in arrange to permit registration alterations. Additionally, the system permits a coordinate web-based communication between the students and the administrative office and can be further developed for electronic application of certain documents and their automatic web-based delivery (Athineos *et al.,* 2005).

Web applications that utilize innovations are like JavaScript, CSS3 and HTML5. They are worked to keep running in the program and numerous sites transform into web applications due to the capacity to enhance the client encounter by enhancing continuance. Utilizing strategies like Asynchronous JavaScript and XML (AJAX), faster JavaScript, CSS3, HTML5, web designers have similar conceivable outcomes to react to client activities, for example, local application engineers. AJAX can data from and send to servers without full page rendering and CSS3 gives a way to deal with make phenomenal configuration and interface joined with revived advancement and hardware animations (Mulder, 2011). Web-based applications vary from other conventional applications in terms of high reliability, high usability, security, better technology, shorter time to market, shorter product life cycle and on-going maintenance (Ahmad *et al.,* 2012).

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According to Hardcastle (2008), web servers are utilized to store, oversee and supply data around the world. It requires a reference to a database, for example, a demand for item data; it will pass an inquiry to a database server and after that arrival it to the client as a progressively created website page. Data about all page demands is put away in the exchange log document that records the asked for page, the time made and the wellspring of the examination.

The magnificence of a web based system is the means by which open it is when contrasted with customary programming system. Access to a web based framework can be gotten from any zone as long as the customers have web association. The user interface of web-based applications is less demanding to redo. This makes it less complex to refresh the look or to adjust the acquaintance of information with different customer social occasions (PJ Web, 2018).

Web based system are regularly passed on submitted servers, which are checked and kept up by learned server administrators. This is altogether more convincing than checking hundreds or even a considerable number of client PCs like the case with work territory applications. This implies security of utilizing online framework is all the more firmly and any potential breaks should be seen with only little of time (Magic Web Solution, 2018).

The one of the server side scripting language that known is Active Servers Pages (ASP) which is a Microsoft product and is used with Internet Information Servers (ISS) (Stephanie Schoolfield, 2014). The ASP programming language is utilized to code dynamic pages, web administrations and applications. Dynamic Server Pages can be utilized as an

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intermediary between the customer browser and a database, utilizing the ActiveX Data Objects (ADO) innovation, which gives the components important to start association with a databases administration framework and the treatment of information utilizing the SQL language (CCM.Net, 2018). The support for ASP is available in Windows Operating Systems like Windows 7, Vista, 8 and 10 as for now. Nonetheless, the help for ASP in Windows 7 would be finished on 14th January 2020. Before the arrival of Windows 8, it was expressed the help for ASP in the working framework would keep going for no less than 10 years after its dispatch (CleverISM, 2018).

Hypertext Preprocessor (PHP) is an open source server side scripting language for making dynamic web pages (Dwarampudi *et al.,* 2010). According to Technologies (2007), PHP is empowering agent innovations alongside other open source ventures MySQL, Apache or JBoss. Dissimilar to conventional programming languages such C/C++, PHP does not need to be compiled. Rather, the source code is deciphered at runtime. In PHP, there is free software written inside it which is phpMyAdmin. phpMyAdmin propose to handle the organization of MySQL over the Net. phpMyAdmin supports a wide run of operations on MySQL. One of the real points of interest PHP offers is stage freedom. As of now, the list of supported operating systems incorporates Linux (for different CPU models), Microsoft Windows, Mac OS X, Sun's Solaris (SPARC and Intel), IBM AIX, HP-UX, FreeBSD, Novell Netware, SGI IRIX, IBM AS/400, OS/2 and RISC OS.

Forrester Research assessed 13 leading open source programming ventures utilizing around 40 criteria and found that six of the ventures emerge

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as cases of perfection and are prepared for corporate use10. PHP was the main dynamic programming language in this gathering and remained close to MySQL, Eclipse, Apache HTTP Server, Apache Tomcat, and the JBoss Application Server. US magazine eWeek validated that the LAMP-stack (and PHP in specific) give phenomenal execution contrasted and business options like Microsoft's. Net (Technologies, 2007).

As a programming language that is generally use on the Internet, one of the PHP benefit is the capability to connect with a database. This is because of the significance of database for a few sites including web based business and numerous other web sites. PHP has made it simple to connect with a database with an inherent module. When design a website that is driven by information or content, database will be utilized habitually. PHP proves to be useful in the administration of this sort of websites and furthermore fundamentally diminishes time expected to make a web application (Davis Paul, 2018).

Table 2.1: Comparison between PHP and ASP (Stephanie Schoolfield, 2014)

	Hypertext Preprocessor (PHP)	Active Server Pages (ASP)
History	PHP is one of the widely used scripting languages. PHP works on a number of different platforms including Linux, UNX, Solaris and Windows.	ASP is a Microsoft product and is used with ISS or Internet Information Servers. ASP works mainly on Windows platforms.

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