GREEN ELECTRONIC PARKING PAYMENT SYSTEM

LEE XUE WEN

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GREEN ELECTRONIC PARKING PAYMENT SYSTEM

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This report is submitted in partial fulfilment of the requirements of the Bachelor of Computer Science (Software Development)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
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2016

DECLARATION

I hereby declare that this project report entitled
GREEN ELECTRONIC PARKING PAYMENT SYSTEM
is written by me and is my own effort and that no part has been plagiarized without citations.

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I hereby declare that I have read this project and found
this project report is sufficient in term of the scope and quality for the award of
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DEDICATION

I would like to dedicate my final year project report to my beloved family, friends and my lecturers who untiring supports and assistance have made possible the fruition of my efforts. Special thanks to my supervisor Mohd Hariz Bin Naim @ Mohayat always guiding and giving advice to help me to complete up this project. Thanks for all support.

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ABSTRACT

Green Electronic Parking Payment (GEPP) is a project of a mobile application system that is developed to help users in having an easier and convenient way to make car parking payments. The system enables users to make parking payments by using their mobile devices via PayPal and E-coupon. GEPP will also help Majlis Bandaraya Melaka Bersejarah (MBMB) enforcers to check the parked car's status by referring the car's plate number in the mobile application. The administrator will be able to produce payment and summon reports through the web based service. GEPP will be developed using Android Studio, PHP script, Apache server and also MySQL server. The methodology that has been used is the Waterfall model.

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CHAPTER I

INTRODUCTION

1.1 Introduction

Car parking coupon is the current standard parking payment in Malacca city. User have to scratch the date and time of parking on the coupon and display on the car's dashboard. Therefore, Green Electronic Parking Payment is introduced to provide alternative payment through application.

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Green Electronic Parking Payment is a system that has payment module, enforcer module and admin module. Payment module will be function as mobile application that allow user to make parking payment through online payment or QR code payment method. Next, enforcer module will be allowed checking on parking payment by enforcer. Lastly will be the admin module which focus on management of whole system and generate QR code for user to make parking payment.

In this chapter, the problem statement about will be describe in detail in the next section. Afterwards, the project objective will be discussing follow by the scope of the project in section 1.4. Next, the project significant and lastly the expected output will also discuss in detail.

1.2 Problem Statement(s)

- Parking coupon mostly sells in a booklet. User has to keep the remaining coupon after use. This is not user friendly as parking coupon is easily lost. For user that own more than one car they need to shift the coupon every time change car coupon only limit for two or three years used. For user that are not using it frequently will be wasted the money.

- User groups that did not own a credit card face problem to pay with alternative parking payment system. Current system introduced PayPal which is an international payment method which is to target wider market value. PayPal is the most popular online payment service in use today that needs to pay by credit card. Though not all community own a credit card, for user group like student and low income community that are not qualified to own a credit card will face problem to precede payment through PayPal.

- User required returning to the car parking place to update the parking time. This occurred with problem while user is walked far away from the car or enjoying precious moment are forced to return to car parking location updated parking time. In order to avoid summon that cost 50 times higher than the parking fee, user have no choice other than return to car parking location.

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1.3 Objective

1. To enhance application which allow user to pay parking fee through application by developing the following modules:

   - ❖ The first payment method is through E-ticket with QR code.
     Introduce payment with QR code scanning is for user group that does not own a credit card. User buys a QR code and scan with mobile to complete the payment process. The credit in the QR code will be updated after the transaction had been done.

   - ❖ The second payment method is through PayPal.
     User need to register a PayPal account and make parking payment with the registered PayPal account.

   - ❖ Calculate the parking end time for user reference.
     Application will display parking end time for user once the parking duration is selected by the user.

   - ❖ Display the parking rate and calculate the total parking payment.
     Application will get parking rate from server and display in the user screen. Total parking payment amount will calculate by application once user select the parking duration.

   - ❖ Display the parking transaction history.
     Application can display user transaction history anytime (online and offline). Transaction date, time, payment method and total payment amount is shown in list.

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2. To develop a web base system for administrator which has the following functionality:

   - ❖ Generate QR code for E-tickets.
     In the generating process, administrative can select the QR code credit amount and quantity of code to be print. The QR code is able to print out in PDF format.

   - ❖ Update the parking rate.
     Parking rate that display on user application is control by administrative. Administrative can update parking rate in browser.

   - ❖ Display parking transaction and summon information.
     The latest parking transaction and summon information will be display in the web base dashboard.

   - ❖ Generate the parking transaction history report and summon report.
     Parking transaction report and summon report can be generate in PDF formatted file.

   - ❖ Filter the parking transaction to get monthly total payment and generate bar graph.
     The parking information can be filter by month and can be search by car plate number. Monthly total payment will be calculated and user can view the comparison of payment for each month by bar graph.

   - ❖ Update the summon status.
     Administrator can update the summon status once summon is paid by car owner.

   - ❖ Add, update and delete enforcer information.
     Administrative can add enforcer to access the web base and enforcer application.

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1.4 Scope

3. Green parking payment will introduce in Melaka city. It will widely at Melaka public parking space. The target users are all car owner or car driver that travels in the Melaka city.

4. This application required internet connection to complete the transaction. All QR code credit and online payment will connect to the database for record.

1.5 Project Significance

The target is to provide alternative coupon system in Melaka public parking space. Melaka is a tourism city, an alternative payment system that can suite with the technology nowadays is strong recommended. Green parking payment improve the payment method easier for tourist that first visit to Melaka. For Malacca local people will not worry about the ticket availability in the car, because user can make payment any time with only a finger tips through application. For user that prefer to shopping are most suitable to use this application, as they are not sure about end time of their shopping period. For user group like student and housewife that do not own a credit card can use pay parking fee by purchasing the QR code.

The administrator of public parking space can generate the unique QR code based on the credit amount and quantity of QR code with the same credit amount to be generated at once. After generate the QR code, administrator can print the QR code in PDF formatted file. The purpose of printing the QR code is to be selling to user as E-ticket to make parking payment through QR code scanning.

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1.6 Expected Output

Green Electronic Parking Payment application is one of the convenience and eco-way parking payment system for a traveller and locals, it had provided solutions for those who are travelling frequently and didn't prepared the parking coupon in the specific locations. The main target is to provide an alternative payment method that could able to replace the current coupon system. User able to pay parking ticket via their mobile application, able to get notification before time is running out and view time left for parking session. Green Electronic Parking Payment could introduce a user friendly interface and functionality.

1.7 Conclusion

Green parking payment aims to provide an alternative payment method to Melaka car parking user. A detail of QR code payment is introduced in this chapter. The next chapter will introduce literature review and project methodology in detail.

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CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

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2.1 Introduction

This chapter discusses about literature review and project methodology of project. Detail discuss of existing system and current system. Project methodology use in this system is waterfall model and every step will be listed in step by step. The requirement for development of project and project schedule will discuss in details.

2.2 Facts and findings

2.2.1 Electronic payment

Electronic payment system is illustrated as any transaction of funds launch through an electronic transition medium (Shon and Swatman, 1998). Electronic payment is a non cash payment method that does not require any paper usage. Furthermore it is convenient for consumer by just entering the account information and the data will be record in database. Study from business perspective, electronic payment is an effective method that can lower the cost for business. The cost spends on paper and postage can be decrease, if the usage of electronic payment is increase (Jennifer, 2016). A business that implements electronic payment can increase consumer retention. Most of the consumers are preferred to return to the website where their information has already been stored, so that they can access the website in a shorter time. There are few methods of electronic payment such as credit card and debit card.

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2.2.1.1 Feasibility of electronic payment

Many banks and payment industry are cooperated to promote popularity of electronic payment in Malaysia society. In achieving highly developed country status, electronic payments are widely supported nowadays such as Internet Banking, MEPS cash and e-wallet. The effort is to overcome barriers to widely introduce electronic payment and to grant the significant support to maintain the continuous transition to electronic payment. Electronic payment is one of the nine focus areas of blueprint to lead Malaysia's development. Bank is expected to raise the number of electronic payment deal per capita from 44 transactions to 200 transactions in the future 10 years (Bank Negara Malaysia, 2015). To achieve this goal, bank will provide best price offer to encourage the reversal of paper to electronic payment. In Malaysia,

most of the transactions are involve cash with coverage of 92.5 percent, however electronic transactions are rising at about 9 percent in every year (Amrish, 2013). The implication changes of payment method in the developing country are led by rapid growing of middle class. Asian market is the world's fastest growing in the use of electronic payment, with the reason of the popularity of e-commerce.

2.2.1.2 Security issues of Electronic Payment

Electronic payment scam is increasing every day. Most of the consumers are more prefer to use mobile application for banking activity as it is easy and fast. Online banking that required consumers to provide personal information and credit card details are often process in unsecure way (Kolkata and Whinston, 1997). Since the technology is emerging rapidly, the number of scams or fraud information are increasing each day. Due to financial criminal happened, so a well plan security model for electronic payment is require. Different controls need to implements at different point of electronic transaction. Bank that introduces consolidate real-time scam disclosure and avoidance system to be a well strategy to avoid vicious attack with the strong and advance electronic payment scam defences (Mike, 2014).

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2.2.1.3 Mobile Payment

In the year of 2015, there was extraordinary growth of smartphone in Malaysia. The convenience price of Android smartphones from China and most of the telecommunication company in Malaysia provide a wider coverage of network to fulfil the demand for smartphones. Popularity of low cost smartphone devices with an advanced function fully attract Malaysian mobile user. Euro Monitor International (2016) summary that in 2015 Samsung Malaysia Electronic attained 39% volume share, shown the preference of Malaysia mobile phone user to Android devices.