

NUMBER PLATE RECOGNITION PARKING SYSTEM



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JUDUL: NUMBER PLATE RECOGNITION PARKING SYSTEM

SESI PENGAJIAN: 2017

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# NUMBER PLATE RECOGNITION PARKING SYSTEM

NG KOK SOON



This report is submitted in partial fulfillment of the requirements for the  
Bachelor of Computer Science (Database Management)

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY  
UNIVERSITI TEKNIKAL MALAYSIA MELAKA  
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**DECLARATION**

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## ABSTRACT

Number Plate Recognition Parking System is a system that use the number plate recognition function to detect and recognize the number plate of car during the car enter or exit the parking lot. The system are able to recognize the number plate of car and then differentiate the owner of car is staff or visitor. If the owner is staff, the attendance system will take function. If the owner of car is visitor, payment system will take function. Currently, many of parking lot in Malaysia still using parking ticket for visitors to make a payment for the parking fees and use the parking pass for the staff to enter the parking lot. It would be tedious and inconvenient for the users because some users may be will lost their parking ticket or forget to bring their parking pass. Thus Number Plate Recognition Parking System is developed for replacing the traditional parking system to one that comfortable and easy to use system. The system is developed based on the observation on the operation of the parking system at the parking lot. Thus, functional and non-functional requirements are constructed. Therefore, Number Plate Recognition Parking System will be developed to improve the traditional parking system and solve the current problem those are faced by the traditional parking system.

## ABSTRAK

Number Plate Recognition Parking System adalah satu sistem yang menggunakan fungsi pengecaman nombor plat untuk mengesan dan mengenal pasti nombor plat kereta semasa kereta masuk atau keluar dari tempat letak kereta. Sistem ini dapat mengecamkan nombor plat kereta dan kemudian membezakan pemilik kereta adalah kakitangan atau pelawat. Kalau pemilik kereta adalah kakitangan, sistem kehadiran akan mengambil fungsi. Jika pemilik kereta adalah pelawat, sistem pembayaran akan mengambil fungsi. Pada masa ini, banyak tempat letak kereta di Malaysia masih menggunakan tiket letak kereta untuk pelawat untuk membuat pembayaran bagi bayaran letak kereta dan menggunakan pas untuk kakitangan untuk memasuki tempat letak kereta. Ia akan menyusahkan pengguna kerana sesetengah pengguna mungkin akan kehilangan tiket letak kereta mereka atau lupa untuk membawa pas mereka. Number Plate Recognition Parking System dibangunkan untuk menggantikan sistem letak kereta yang tradisional kepada yang selesa dan mudah untuk pengguna menggunakan sistem. Sistem ini dibangunkan berdasarkan pemerhatian pada operasi sistem tempat letak kereta di tempat letak kereta. Oleh itu, Number Plate Recognition Parking System akan dibangunkan untuk memperbaiki sistem tempat letak kereta tradisional dan menyelesaikan masalah semasa yang dihadapi oleh sistem tempat letak kereta tradisional.

## TABLE OF CONTENTS

<b>CHAPTER</b>	<b>SUBJECT</b>	<b>PAGE</b>
	<b>DECLARATION</b>	<b>i</b>
	<b>ACKNOWLEDGEMENT</b>	<b>ii</b>
	<b>ABSTRACT</b>	<b>iii</b>
	<b>ABSTRAK</b>	<b>iv</b>
	<b>TABLE OF CONTENTS</b>	<b>v-ix</b>
	<b>LIST OF TABLES</b>	<b>x-xi</b>
	<b>LIST OF FIGURES</b>	<b>xii-xv</b>
<b>CHAPTER I</b>	<b>INTRODUCTION</b>	
	1.1 Introduction	1-2
	1.2 Problem Statement	2
	1.3 Objective	3
	1.4 Scope	
	1.4.1 Scope of user	3-4
	1.4.2 Scope of system	4-5
	1.5 Project Significant	5
	1.6 Expected output	6
	1.7 Conclusion	6
<b>CHAPTER II</b>	<b>PROJECT METHODOLOGY AND</b>	



<b>PLANNING</b>		
2.1	Introduction	7-8
2.2	Database Life Cycle	8-12
2.3	Project Schedule and Milestones	
2.3.1	Milestones	13
2.3.2	Gantt Chart	14
2.4	Conclusion	15
<b>CHAPTER III ANALYSIS</b>		
3.1	Introduction	16
3.2	Problem Analysis	17-18
3.3	The proposed improvements/ solutions	19-20
3.4	Requirement analysis of the to-be system	
3.4.1	Functional Requirement	21-66
3.4.2	Non-functional Requirement	66
3.4.3	Other Requirement	67
3.5	Conclusion	67
<b>CHAPTER IV DESIGN</b>		
4.1	Introduction	68-69
4.2	Database Design	
4.2.1	Conceptual Design	
4.2.1.1	Entity Relationship Diagram	70
4.2.1.2	Business Rule	71
4.2.2	Logical Design	
4.2.2.1	Data Dictionary and Sample Data	72-79
4.2.2.2	Normalization of Table	79-82

4.2.2.3 SQL statements	82-83
4.2.3 Physical Design	
4.2.3.1 Selection of DBMS	84
4.2.3.2 PL/SQL	84-86
4.2.3.3 Security Mechanism	87
4.2.3.4 Backup and recovery mechanism	87-89
4.3. Graphical User Interface (GUI) Design	
4.3.1 Navigation Design	90
4.3.2 Input Design	91-93
4.3.3 Output Design	94-99
4.4 Conclusion	99
<b>CHAPTER V IMPLEMENTATION</b>	
5.1 Introduction	100-101
5.2 System Development Environment Setup	
5.2.1 Installation Step	101-102
5.2.2 Assigning Admin Login	102
5.2.3 Starting the Database Service	102
5.2.4 Database Creation and Database Object	103
5.3 Database Implementation	
5.3.1 Data Definition Language	104
5.3.1.1 Create Database	104
5.3.1.2 Create Table and Constraint	104-107
5.3.1.3 Sequence	107-108
5.3.1.4 Trigger	108-109
5.3.1.5 Stored Procedure	110-111

5.3.1.6 Function	112
5.3.2 Data Control Language	112
5.3.3 Data Loading	113
5.4 Conclusion	113
<b>CHAPTER VI TESTING</b>	
6.1 Introduction	114-115
6.2 Test Plan	
6.2.1 Test Organization	115
6.2.2 Test Environment	116
6.2.2.1 Hardware Requirements	116
6.2.2.2 Software Requirements	116
6.2.2.3 Documentation	116
6.2.3 Test Schedule	117
6.3 Test Strategy	
6.3.1 Classes of Tests	117-118
6.4 Test Design	
6.4.1 Test Description	118-125
6.4.2 Test Data	125
6.4.3 Integration Testing	125-129
6.4.4 Acceptance Testing	
6.4.4.1 Functional Requirements	129-135
6.5 Test Result and Analysis	136-137
6.6 Conclusion	137
<b>CHAPTER VI CONCLUSION</b>	
7.1 Introduction	138

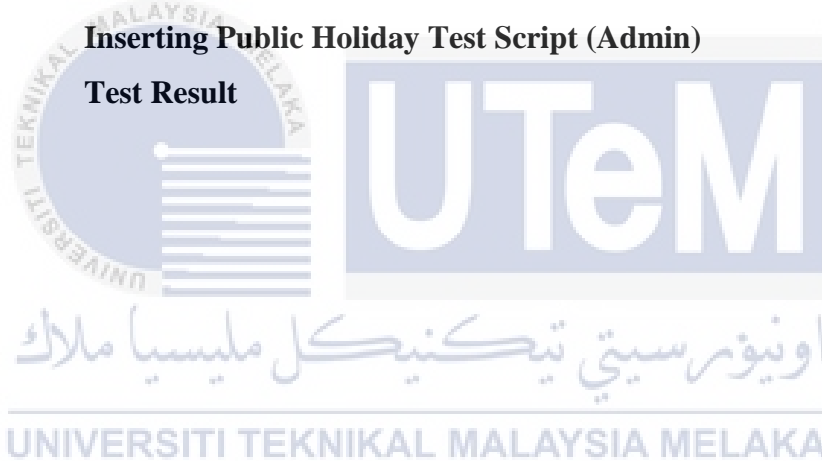
7.2 Observation on Weaknesses and Strengths	
7.2.1 Weaknesses	139-140
7.2.2 Strengths	140-141
7.3 Propositions for Improvement	
7.3.1 Enhancing Reporting Features	141-142
7.3.2 Testing With Real Data	142
7.3.3 Improve the Algorithm	142
7.4 Contribution	142-143
7.5 Conclusion	143



## LISTS OF TABLE

<b>TABLE</b>	<b>TITLE</b>	<b>PAGE</b>
2.1	Milestone	13
2.2	Gantt Chart	14
4.1	Data dictionary for table department	72
4.2	Sample data for table department	72-73
4.3	Data dictionary for table staff	73
4.4	Sample data for table staff	73-74
4.5	Data dictionary for table plate_number	74
4.6	Sample data for table plate_number	74
4.7	Data dictionary for table parking_detail	75
4.8	Sample data for table parking_detail	75
4.9	Data dictionary for table year	76
4.10	Sample data for table year	76
4.11	Data dictionary for table visitor	76-77
4.12	Sample data for table visitor	77
4.13	Data dictionary for table payment_detail	78
4.14	Sample data for table payment_detail	78
4.15	Data dictionary for table price	78-79
4.16	Sample data for table price	79
5.1	List of The Trigger	109
6.1	Users and Responsibilities of Involved Users	115
6.2	Hardware Requirements	116
6.3	Software Requirement	116
6.4	Number Plate Recognizing Parking System Test Schedule	117
6.5	Login Test Description	118

6.6	Login Test Script (Admin)	119
6.7	Login Test Script (Staff)	119
6.8	Inserting New Number Plate Test Description	120
6.9	Inserting New Number Plate Test Script (Admin)	120
6.10	Inserting New Number Plate Test Script (Staff)	120
6.11	Inserting New Password Test Description	121
6.12	Inserting New Password Test Script (Admin)	121
6.13	Inserting New Password Test Script (Staff)	122
6.14	Inserting New Staff Test Description	122
6.15	Inserting New Password Test Script (Admin)	123
6.16	Inserting New Staff Test Description	123
6.17	Payment Test Script (Visitor)	124
6.18	Inserting Public Holiday Test Description	124
6.19	Inserting Public Holiday Test Script (Admin)	125
6.20	Test Result	136-137



## LIST OF FIGURES

<b>FIGURE</b>	<b>TITLE</b>	<b>PAGE</b>
2.1	<b>Database Development Life Cycle (DBLC) Diagram</b>	<b>8</b>
3.1	<b>Flow chart of traditional parking system</b>	<b>17</b>
3.2	<b>Flow chart of number plate recognize parking system</b>	<b>19</b>
3.3	<b>Use Case Diagram for Login</b>	<b>21</b>
3.4	<b>Use Case Diagram for Forget Password</b>	<b>23</b>
3.5	<b>Use Case Diagram for Payment</b>	<b>26</b>
3.6	<b>Use Case Diagram for View Time Enter And Exit Parking Lot</b>	<b>29</b>
3.7	<b>Use Case Diagram for Register New Number Plate</b>	<b>31</b>
3.8	<b>Use Case Diagram for View Personal Detail</b>	<b>33</b>
3.9	<b>Use Case Diagram For View Department Attendance Report</b>	<b>35</b>
3.10	<b>Use Case Diagram for View Department Absent Report</b>	<b>38</b>
3.11	<b>Use Case Diagram View Department Monthly Attendance Report</b>	<b>40</b>
3.12	<b>Use Case Diagram View Attendance Report</b>	<b>43</b>
3.13	<b>Use Case Diagram View Staff Attend Report</b>	<b>45</b>
3.14	<b>Use Case Diagram View Staff Absent Report</b>	<b>48</b>
3.15	<b>Use Case Diagram for View Visitor Report</b>	<b>50</b>
3.16	<b>Use Case Diagram for View Parking Report</b>	<b>53</b>
3.17	<b>Use Case Diagram for View Payment Report</b>	<b>55</b>
3.18	<b>Use Case Diagram for Search Staff Detail</b>	<b>58</b>
3.19	<b>Use Case Diagram for Adding New Staff</b>	<b>60</b>
3.20	<b>Use Case Diagram for Parking Lot</b>	<b>63</b>

4.1	3-Tier design Architecture	69
4.2	ERD of Number Plate Recognize Parking System	70
4.3	3NF of Department Table	79
4.4	3NF of Staff Table	80
4.5	3NF of Plate_Number Table	80
4.6	3NF of Year Table	80
4.7	3NF of Parking_Detail Table	81
4.8	3NF of Price Table	81
4.9	3NF of Visitor Table	81
4.10	3NF of Payment_Detail Table	82
4.11	Aggregate queries	82
4.12	Subqueries	83
4.13	Join queries	83
4.14	Unary Query	83
4.15	Stored Procedure	84
4.16	Sample code of trigger	85
4.17	Scheduler job	86
4.18	Function	86
4.19	Sequence	86
4.20	Register new staff	87
4.21	Staff Login	87
4.22	Change password	87
4.23	Create directory	87
4.24	Procedure for backup	88
4.25	Sheduler job for backup	88
4.26	Recovery for backup	89
4.27	Navigation Design of Number Plate Recognize Parking System	90
4.28	Login Interface	91
4.29	Forget Password Interface	91
4.30	Add New Number Plate Interface	92
4.31	Add New Staff Interface	92
4.32	Payment Interface	93



4.33	<b>Adding public holiday</b>	<b>93</b>
4.34	<b>Personal Detail Interface</b>	<b>94</b>
4.35	<b>Car Parking Record Interface</b>	<b>94</b>
4.36	<b>Department Staffs Attend Report Interface.</b>	<b>95</b>
4.37	<b>Total Staff Attend According Department Interface</b>	<b>95</b>
4.38	<b>Staff Attend Report Interface</b>	<b>96</b>
4.39	<b>Staff Absent Record Interface</b>	<b>96</b>
4.40	<b>Search Staff Parking Detail Interface</b>	<b>97</b>
4.41	<b>Payment Detail of Visitor Interface</b>	<b>97</b>
4.42	<b>Visitor Parking Report Haven Exit Parking Lot Interface</b>	<b>98</b>
4.43	<b>Payment Successful</b>	<b>98</b>
4.44	<b>Recovery</b>	<b>99</b>
5.1	<b>PL/SQL for Create User</b>	<b>104</b>
5.2	<b>PL/SQL for Create Table Department</b>	<b>104</b>
5.3	<b>PL/SQL for Create Table Parking_detail</b>	<b>105</b>
5.4	<b>PL/SQL for Create Table Payment_Detail</b>	<b>105</b>
5.5	<b>PL/SQL for Create Table Plate_Number</b>	<b>105</b>
5.6	<b>PL/SQL for Create Table Price</b>	<b>106</b>
5.7	<b>PL/SQL for Create Table Public Holiday</b>	<b>106</b>
5.8	<b>PL/SQL for Create Table Staff</b>	<b>106</b>
5.9	<b>PL/SQL for Create Table Visitor</b>	<b>107</b>
5.10	<b>PL/SQL for Create Table Year</b>	<b>107</b>
5.11	<b>PL/SQL for Create Sequence Staff ID</b>	<b>107</b>
5.12	<b>PL/SQL for Create Sequence Department ID</b>	<b>108</b>
5.13	<b>PL/SQL for Create Sequence Visitor ID</b>	<b>108</b>
5.14	<b>PL/SQL for Create Sequence Parking Detail ID</b>	<b>108</b>
5.15	<b>PL/SQL for Create Trigger</b>	<b>109</b>
5.16	<b>PL/SQL for Create Select Statement Stored Procedure</b>	<b>110</b>
5.17	<b>PL/SQL for Create Login Procedure</b>	<b>110</b>
5.18	<b>PL/SQL for Create Insert Store Procedure</b>	<b>111</b>
5.19	<b>PL/SQL for Create Update Store Procedure</b>	<b>111</b>

5.20	PL/SQL for Create Function	112
5.21	PL/SQL for DCL	112
6.1	Integration Image I	126
6.2	Integration Image II	126
6.3	Integration Image III	127
6.4	Integration Image IV	127
6.5	Integration Image V	128
6.6	Integration Image VI	128
6.7	Integration Image VII	129
6.8	Attendance Image I	130
6.9	Attendance Image II	131
6.10	Attendance Image III	131
6.11	Attendance Image IV	132
6.12	New Data Image I	132
6.13	Search Image I	133
6.14	Search Image II	133
6.15	Payment Image I	134
6.16	Payment Image II	134
6.17	Recognize Image I	135
6.18	Recognize Image II	135



## CHAPTER I

### INTRODUCTION



#### 1.1 Introduction

Parking system are very common for shopping mall or big company because they have to provide parking area for their staff and for the customers. Based on some weakness of the traditional parking system, improvement of the parking system can be done by adding the number plate recognition system. The traditional parking system are costly because need to pay for the parking ticket and sometimes users will lost their ticket or some users will forget to bring their parking ticket.

Number plate recognition system is a technology that uses optical character recognition on images to read vehicle registration plates [1]. Our solution is to develop a combination of parking system and number plate recognition

system that allow the system to detect and recognize the number plate of user and insert into the database as the user went in the parking field.

## 1.2 Problem Statement

The number plate recognition parking system is tending to develop a new parking system because the system will bring more benefits for the users. Below are the problem that identified from the traditional parking system:

i. Wasting paper and users feel inconvenient

Traditional parking payment system are wasting paper because the parking system made by paper and sometimes users will lost the ticket or forget bring their parking pass and need go to parking control center.

ii. Difficult to identify identity of car owner

The traditional system are unable to differentiate the owner of car which enter the parking field are visitor or staff because the visitor need to pay the parking fees.

iii. Time record are not provided by traditional parking system

Traditional system are unable to record the time of the car go in and go out the parking field and unable to take attendance of the staff based on number plate of car.

### 1.3 Objective

That are 3 objective for develop this system such as:

- i. To develop a car management parking system using number plate recognition information on image data.
- ii. To detect and recognize the plate number of car in order to differentiate the car of visitors and staffs.
- iii. To generate parking fee payment for visitors and generate attendance information system for staffs.

### 1.4 Scope



In this section, the scope was divided into scope of user and scope of system.

#### 1.4.1 Scope of user

There are 3 role of user such as:

##### a. Visitor

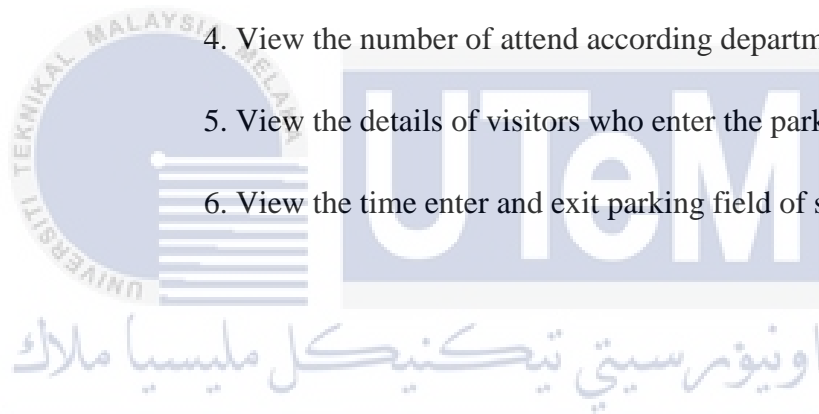
1. Insert the number plate for payment.
2. View the parking hour in the parking field.
3. View the parking fees need to pay.
4. Pay the parking fees through the system.

##### b. Staff

1. View the time enter and exit the parking field for current date.
2. View the number plate of car register.
3. Register the new number plate for enter the parking field.
4. View the personal detail.

c. Administrator

1. Add the new staff.
2. Search the detail of staff.
3. View the attendance report of the staff.
4. View the number of attend according department.
5. View the details of visitors who enter the parking field.
6. View the time enter and exit parking field of staff.



#### 1.4.2 Scope of system

There are mainly 3 scope of module to develop, such as:

a. Guard module

1. Recognize the plate number of car.
2. Differentiate the number plate is staff or visitor.
3. Check the parking status of visitors during the visitors exit the parking field.

b. Attendance module

1. Record the time in and time exit the parking field of the staff.
2. Record the number plate of the staff.

c. Payment module

1. Calculate the parking hour of visitors.
2. Calculate the parking fees of visitors.
3. Calculate the balance after the visitors insert the parking fees.
4. Update the parking status of the staff.



### 1.5 Project Significant

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As we all know, the traditional parking system will not store the record of parking information. Thus, the number plate recognition parking system is an added value function which will store all the parking record into the database after the system were able to detect the car that enter the parking area.

Besides that, this system also will store the record of staff exit and enter the parking field into the database. This function can be act as an attendance system which attendance will be taken automatic when the staff enter and exit the parking field.

The system developed will solve the visitors lost parking ticket problem and prevent the staff forget bring their parking pass. Besides that, record of staffs enter and exit company also will record and the attendance problem faced by company also can be solve.

## 1.6 Expected output

1. The system will be able to detect the number plate of car and differentiate the car of staffs and visitors based on the data stored in the database.
2. Based on the visitors entry time and exit time, system was able to calculate the parking fees for visitors and visitors are able to pay through the system.
3. The system was able to take the attendance of staff using car number plate and store them in the database.
4. Managers are able to check the attendance information of staff based on the record in the database.

## 1.7 Conclusion

In conclusion, number plate recognition parking system is a parking system which will improve all the disadvantages of the traditional parking system and provide a paperless environment. This system can differentiate the staff and visitor which enter the parking area and provide different functions for different users.

This system is developed by Java and Oracle 11g. The development of the database will be discussed more in detail in the next chapter.