CAR PARK CONTROL SYSTEM

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JUDUL: CAR PARK CONTROL SYSTEM

SESI PENGAJIAN: 2007/2008

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Tarikh : 16 June 2008

DECLARATION

I hereby declare that this project report entitled

CAR PARK CONTROL SYSTEM

is written by me and is my own effort and that no part has been plagiarized without citations.

STUDENT : _____ Date: 16 June 2008

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SUPERVISOR : _____ Date: 16 June 2008

(DR.IR.ANTON SATRIA PRABUWONO)

DEDICATION

To my beloved parents

To my beloved brothers

To my beloved lecturers

To my beloved friends

ACKNOWLEDGEMENTS

In finish the Final Year Project successfully, I would like to thank all of them who are really helping and guiding me to the right direction.

First of all, I would like to express my sincere gratitude to my supervisor Dr.Ir.Anton Satria Prabuwono. His deep insight for the countless inspiring discussion, and special way of supervision had guided me step by step to finish this project.

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Last but not least, I would like to thank to my beloved parents and family who always give me their blessings for everything even though they are far away.

ABSTRACT

This project entitled, Car Park Control System was successfully developed. This project is a system that can be used in the car park. The objective of this project is to build the system that can display the current parking information of the car park. The information displays include the available space, total space of that car park lot. The system functions with the integration of the hardware such as the Optical Character Recognition (OCR), and the web camera. The system is use client server environment. At the server side, the Admin will monitor the system and the database. While at the client side, the parking information will be displayed static based on the database shared by the server. The Visual Studio.Net 2002 as the system implementation tool and the Microsoft Office Access 2003 as the database to store all the data of the system. In testing phase, the questionnaire is done by the UTeM students and the testing result is evaluated. For refreshment, the project objectives are to build a car park control system, to build the system that can display car park information, and to create an interface to enable computer and Optical Character Recognition communicate. In short, the project has archived all the objectives and the Car Park Control System can work properly with the integration of two computers, Optical Character recognition, and web camera.

ABSTRAK

Projek ini yang bertajuk *Car Park Control System* telah dibangunakan dengan berjayanya. Sistem ini ialah system yang khas digunakan di dalam tempat letak kereta untuk mengawal trafiknya dengan memaparkan maklumat tempat kosong di dalam tempat letak kereta. Sistem ini berfungsi dengan penyatuan di antara dua buah computer, satu unit *Optical Character Recognition (OCR)*, dan satu unit web kemera. Sistem ini berfungsi dengan persekitaran pelanggan dan pemberi. Di bahagian pemberi, pengawal sistem akan bertanggungjawab menguruskan segala perjalanan sistem dan pangkalan data. Manakala di bahagian pelanggan hanya bertangungjawab mendapatkan data daripada pangkalan data pemberi yang dikongsikan dan memaparkan tempat kosong yang ada dalam tempat letak kereta. *Visual Studio.Net 2002* digunakan sebagai perisian pembangunan sistem manakala *Microsoft Office Access 2003* digunakan untuk menyimpan segala data dari sistem. Pengujian fungsi sistem telah dilaksanakan oleh beberapa orang pelajar UTeM dan kesimpulan tentang pengujian tersebut telah dibuat. Kesimpulannya, projek ini telah mencapai objektifnya yang ditentukan. Antara objektifnya ialah menbangunkan sistem tempat letak kereta, membangunkan sistem tempat letak kereta yang bolah memaparkan maklumat tempat kosong di dalam tempat letak kereta, dan membuat permukaan supaya computer boleh berinteraksi dengan *Optical Character Recognition (OCR)*.

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1NF	-	Normal Form
2NF	-	Second Normal Form
DFD	-	Data Flow Diagram
DDR	-	Charged Coupled Device
ERD	-	Entity Relationship Diagram
FK	-	Foreign Key
GUI	-	Graphic User Interface
ODBC	-	Open Database Connectivity
OCR	-	Optical Character Recognition
PK	-	Primary Key
PGI	-	Parking Guidance Information
RFID	-	Radio Frequency Identification
SDLC	-	System Development Life Cycle

LIST OF ATTACHMENTS

CHAPTER 1

INTRODUCTION

1.1 Project Background

The car park halls at shopping mall and business area nowadays are always facing the problem of jam because the parking space is full. The drivers are have the habit of move around in the car park hall to find the parking space without know the there is available space or not. Hence, this will give rise the problem of jam in the parking area.

With this scenario, the Car Park Control System will develop which can display the parking information in LCD screen. Once the vehicle willing to entry to entire car park, each of them will be giving the bar code card and they have to scan the card while entry and leave the car park. At the same time, the system will able to keep watch on the free space left and the message will be display if the car park is full.

Actually the system of displaying the information using LCD screen is not widely used in the car park. Normally we will see the information is display using the LED light screen and it has the limitation of blur in displaying the message. Beside that, we can found that this application always apply in the bank to displaying the information of number counter together with the turn number of the customer.

1.2 Problem Statements

The problem of jam in the car park area is the very common phenomenon especially when the shopping center having the super sale or in the week days. Most public car park nowadays has the facilities of parking. Most of the car park system nowadays is setup to keep the parking fee. The example car park system that always use in car park is Crosspark. Crosspark is operates to replace the manpower to keep the parking fee. Even that, the vehicle are still allow to entry even the car park is full. Hence, this system will control the entry of the car in order to avoid the jam in the car park.

1.3 Objective

The objectives of develop this system are:-

A. To build a car park system

The car park system that has the function such as calculate the parking fee, display the car park information, record all the car entry and exit of the car park.

B. To develop a system that can provide the parking information

The parking information that will display includes the available space and also used space in the parking lot.

C. To create the interface as an platform of communication between PC and OCR

The system interface will be act as the platform for the communication between the personal computer and the Optical Character Recognition.

1.4 Scope

The scope is describing the capabilities of this system:-

A. Communication between computer and the barcode reader (Optical Character Recognition)

The barcode reader will able to communicate with the computer. When scanned, the barcode will be displayed in the interface that created and each scanned barcode will be store in the database.

B. Display the parking info on LCD screen

The LCD screen will display the current parking information based on the data that store in the database. The parking information includes the level of the car park, free parking space, used parking space, and the total parking space in that car park. Figure 1.1 shows the interface of the parking information and Figure 1.2 shows the system architecture.

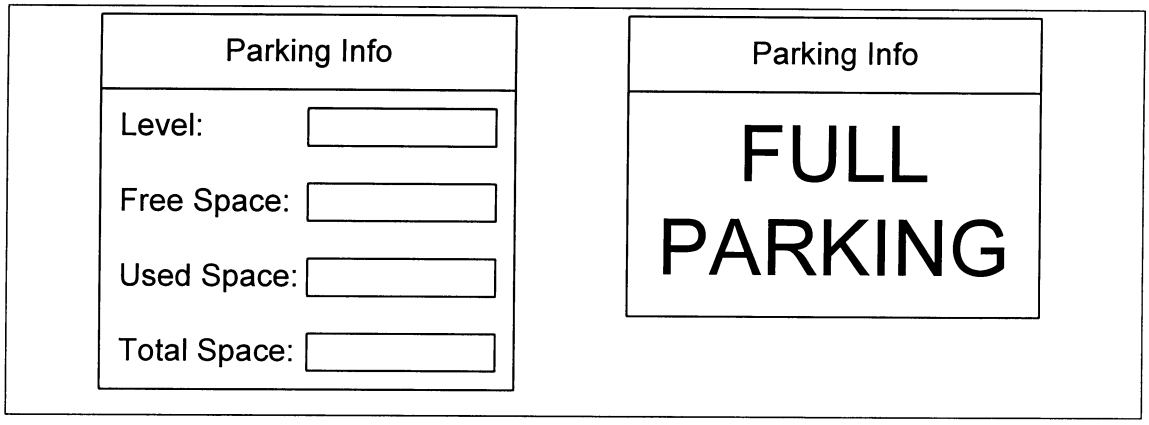

Figure 1.1: Interface of parking info

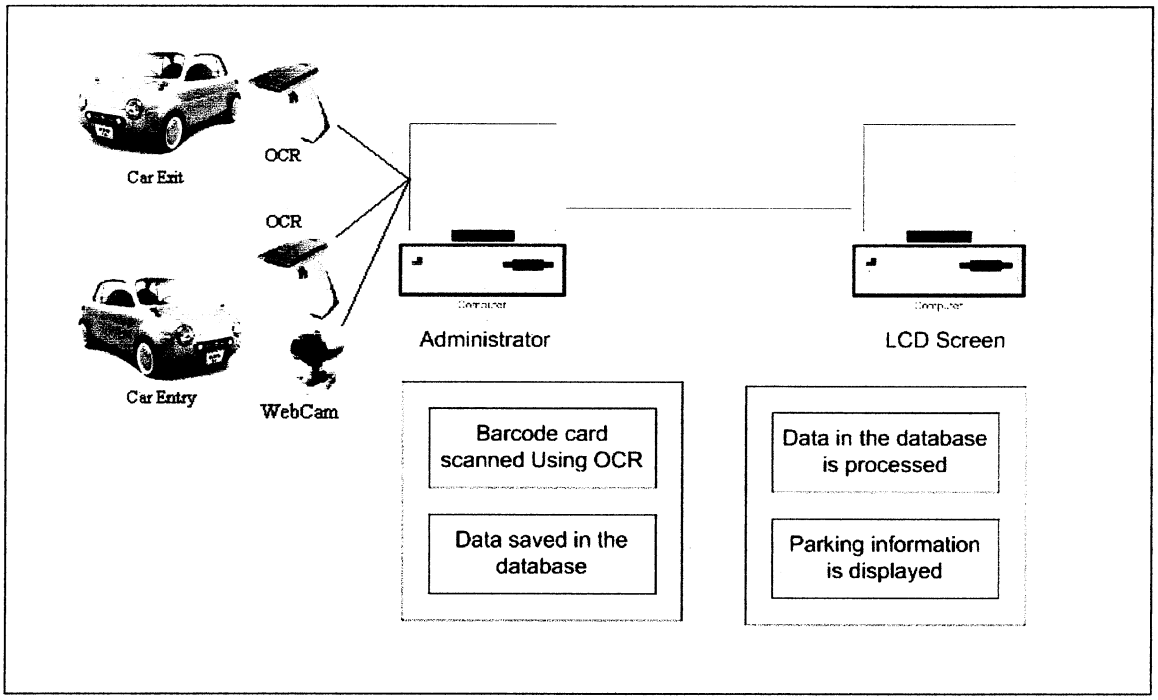

Figure 1.2: System architecture

1.5 Project Significance

By using this system, the public will be benefited. With the displayed parking information, they will no need to doubt it there still have a space in that parking area. Besides that, the organization will have a more systematically car park system and able to manage the car park traffic well.

1.6 Expected Output

The completed system will be the system that can function with the integration of barcode reader (Optical Character Recognition) and the computer to control the car park traffic. Every entry of the vehicle into the car park will be recorded in the database.

The system will display the message of available parking space, used space, and total space at the LCD screen.

1.7 Conclusion

The Car Park Control System is the system that enables the communication between the Optical Character Recognition and the computer and will allow the LCD screen displaying the parking information of the car park. The main purpose of this project is to develop a system that can provide the parking information. Hopefully this project will achieve its objectives and scopes.

In this chapter, the problem statements of the project have been identifying. Beside that, the objective and the project scope also being clearly stated.

In the next chapter, the discussion of the report will include the literature review and project methodology that will be implementing in this system. The technique used, domain, and requirements also will be explained in the next chapter.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

This project will build a car park control system. This system will be the system that enables the communication between the barcode reader and the computer. In this system, the barcode will be scanned using the barcode reader where the barcode will be the identifier of every entry of the vehicle to the car park. By using the barcode data that store in the database, the parking information of the car park will be displayed on the screen. Typically, the barcode reader scanning is using the OCR technology. An Optical Character Recognition (OCR) is a process of capturing an image of a document and then extracting the text from that image.

In this chapter, three main sections which are literature review, project methodology, and the project schedule will be discussed. The literature review will be focus on the main component of this project is barcode reader and the barcode. The analysis includes fact and findings based on the topic, domain, existing system that related to this system, and the keywords of this project. The analysis will be the study of related case study by referring to other resources such as the journal, book, and also the electronic mail source.

Meanwhile in the project methodology section, the selected approach or methodology that going to be used in this project will be deeply discussed. Besides that, the project schedule and milestones also will be documented in this chapter.

2.2 Literature Review

An extensive review of the literature related to smart parking management systems. In the first section, the review includes the domain that related to the system that willing developed in this project. The second section includes the review of the existing system. The review seeks to survey available smart parking management systems and to study the types of technologies. The study will included in the literature review are parking guidance information (PGI), Crosspark Parking System, and RFID Parking Lot Regulation System.

2.2.1 Domain

The domain of this project is barcode. The system will function by using the barcode, the barcode scanner type CCD, and Optical Character Recognition technology to identify the available spaces in car park lot.

A. Barcode

The barcode is getting common to be use in daily life for example in business application. The barcode application can easily found in the hypermarket that used for replaced the traditional pricing of products. "A bar code can best be described as an optical Morse code. Series of black bars and white spaces of varying widths are printed on labels to uniquely identify items. The bar code labels are read with a scanner, which