WEB BASED PARKING MANAGEMENT AND RESERVATION SYSTEM

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Web based Parking Management and Reservation System

A Project submitted to Dean of the Postgraduate Studies and Research in partial Fulfillment of the requirements for the degree Master of Science of Information Technology Universiti Utara Malaysia

By

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....To My Family

ABSTRACT

Information Technology plays a vital role in people's life today. Every aspect of human life is being computerized in order to improve the efficiency of these processes. As countries develop people tend to move towards cities expecting better quality of life. This makes cities over crowed in turn creating new problems. People need to move around to get their day to day work done. Today people prefer travel by vehicles even for short distances as vehicles become cheaper and vehicles provide a comfortable commute. Because of this today's cities have become over crowded with vehicles and traffic jams are characterized as the order of the day.

Finding a suitable parking space in a crowded city is very difficult today. This problem becomes more acute in places that are commonly patronized by many people like shopping malls, restaurants, theatres etc., Sometimes people drive in circles looking for a suitable parking lot. This creates more problems such as more traffic, waste of time and money and environmental degradation. In this study, the parking problem has been looked at depth and a solution using the most advanced information technologies has been developed.

The Web based Parking Management and Reservation System developed in this project is an advanced system that helps users to check the availability of parking spaces and book in advance. Prior to developing the system, a thorough literature survey has been carried out in order to understand the problem properly. Then the application has been designed and developed properly by following the suitable software engineering theories and practices. System design has been done using use case diagrams, sequence diagrams and class diagrams. The diagrams are developed using Unified Modeling Language the post popular modeling language.

The system has been developed using advanced technologies including JAVA as the programming language on .NET framework using JSP 2.0 as the Integrated Development Environment (IDE). The back end database was developed using MS SQL Server.

Finally the system has been tested for usability and ease of use through a sample survey. The result of the survey which is given in Chapter 5 proves that the system is extremely user friendly and the interfaces provide all the necessary tools for a smooth and friendly experience.

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CHAPTER 1: Introduction

1.1 Background

The impact of computers and Information Technology can be felt in almost every aspect of our day to day life. Every equipment or process used is being computed today to improve the efficiency. People move to cities for various purposes including better employment prospects, better living conditions etc., This has made cities more crowded in turn creating several problems. One such problem is finding a suitable parking space especially in places which are patronized by many like shopping malls, theatres, places of worship etc., Lack of parking spaces at strategic places like this make vehicle owners to drive in circles looking for a lot. This creates a lot problems including environmental pollution which affects the quality of life of people and the beauty of the cities.

Managing available parking space in an optimized manner has been a great concern in the recent time for effective utilization of the limited space available in the highly populated cities. This issue has generated series of concerns in the area of optimization research. This signifies the interest of the researcher to contribute to this area of knowledge by proposing a web-based parking reservation system.

The first ever parking guidance system was introduced in Japan in year 1982 (Sakai, et al, 1995). Since then, many studies have proposed different parking space management system (Li, Ma & Wang, 2009; Imaizumi, et al, 1994; Panomruttanarug, et al, 2009; Nakamura, Yamaguchi & Sato-Shimokawara, 2008; Li, et al, 2010; Wolff, et al, 2006; Sarikanth, et al,

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