STUDENT VEHICLE REGISTRATION SYSTEM WITH QR CODE

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SUPERVISOR'S DECLARATION

I hereby declare that I have checked this project, and, in my opinion, this project is adequate in terms of scope and quality for the award of the Degree of Computer Science (Computer System & Networking) with Honours.

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STUDENT'S DECLARATION

I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

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ABSTRAK

Faktor keselamatan di universiti adalah sangat penting. Untuk memastikan keselamatan keselamatan kawasan universiti dan kampus, Bahagian Keselamatan UMP memerlukan sistem untuk merekodkan maklumat pelajar termasuk maklumat kenderaan mereka. Sistem pendaftaran kenderaan dibangunkan untuk menyimpan maklumat semua kenderaan berdaftar pelajar di dalam kampus. Objektif projek ini adalah untuk membangunkan sistem pendaftaran kenderaan pelajar dalam talian dan menghasilkan pelekat kod QR kenderaan universiti pegawai itu. Projek ini akan memberi tumpuan untuk menguruskan semua maklumat pelajar dan kenderaan dengan menjana kod QR pada pelekat kenderaan berdasarkan pada maklumat yang didaftarkan dalam sistem seperti nama pelajar, nombor matrik pelajar, sesi, nombor telefon, tempat tinggal dan nombor plat kenderaan mereka. Pernyataan masalah bagi system ini ialah sesetengah pelajar UMP tidak mendaftar kereta mereka dan menggunakan pelekat kereta milik pelajar lain. Sistem ini dijangka membantu kakitangan keselamatan untuk mengesan sama ada kenderaan itu didaftarkan atau tidak dengan mengimbas kod QR pada pelekat dan membandingkan maklumat dengan pemilik kenderaan dan nombor matrik. Sistem ini akan digunakan oleh pelajar UMP, pengawal keselamatan akan mendafarkan kenderaan tersebut dan memberi pelekat QR Code. Pendaftaran kenderaan pelajar dibangunkan dengan menggunakan Visual Studio 2017 dan Microsoft Access untuk menyimpan data-data pelajar. Metodologi yang digunakan dalam membangunkan system ini ialah model Iteractive Waterfall. Model Iteractive Waterfall terdiri daripada enam fasa iaitu perancangan, analisis, reka bentuk, pelaksanaan dan pengujian. Selepas proses pelaksanaan, sistem ini diuji oleh Ketua Pegawai Keselamatan untuk memastikan semua elemen dalam sistem ini berfungsi tanpa sebarang kesilapan dan untuk memastikan bahawa sistem itu telah mencapai objektif dan boleh membantu Pengawal Keselamatan untuk menghalang kenderaan yang tidak berdaftar.

ABSTRACT

Safety factor in the university is very important. To make sure the safety of the university and campus areas, UMP Security Department will need a system to record the information of student including their vehicle's information. Vehicle registration system is developed to ensure the information of all student's vehicles are registered in the campus. The objective of this project is to design, develop an online student vehicle registration system and produce the official university vehicle's QR code sticker. This project will focus on managing all student's vehicle information and generate QR code on the vehicle sticker based on the information that is registered in the system such as student name, student matric number, contact number, session, residence and their vehicle plate number. The problem statement of this project is some students do not register their vehicle and misuse other vehicle's sticker. The system is expected to help the security staff to detect whether the vehicle is registered or unregistered by scanning the QR code on the sticker and match the information with the owner of vehicle and matric number. This system will be used by UMP students, UMP security management will register the student's vehicle and print the QR Code sticker. The student vehicle registration is developed using Visual Studio 2017 and Microsoft Access to save student's information. The methodology used in developing this system is Iteractive Waterfall model. The Iteractive Waterfall model consists of six phases which are planning, analysis, design, implementation and testing. After implementation process, the system is tested by the Head Officer of the Security Management to ensure that all elements in that system is working without any error. It also to ensure that the system has achieve the objectives and can help the Security Guard to block the unregistered vehicles.

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LIST OF ABBREVIATIONS

IDE   Integrated Development Environment

POS   Point-On-Sale

QR Code   Quick Response Code

RFID   Radio-Frequency Identification

SDLC   System Development Life Cycle

UMP   Universiti Malaysia Pahang

URL   Uniform Resources Locator

CHAPTER 1

INTRODUCTION

1.1　Introduction

QR code is stands for Quick Response code, which is a two-dimensional network code that is developed by the Japanese Corporation Denso Wave in 1994. The main purpose of this QR code is designed for tracking the vehicles during manufacture in industry procedure. QR code permits encode more than 4000 characters in a two-dimensional barcode. QR code can be utilised as a part of numerous routes for business purposes, to provide information about product or service by encoding general text, URL, phone number, business card and provide Wi-fi access. It brings such facilities to the industry and a great potential to share information between marketers and consumers (Anderson, 2011).

QR code provides high capacity encoding of data. QR code can handle all types of data, such as numeric and alphabetic, which can hold up to 7089 characters can be encoded in one symbol. Since QR code carries information both horizontally and vertically, it is capable encoding the same amount of data in approximately one-tenth the space of a traditional barcode. It is also having error correction capability where data can be restored even if the symbol is partially damaged. The use of QR is to save and carry data by using smartphone with camera, QR code reader and scanner application to display the information (Wave, n.d.).

QR code technology that will be implement into vehicle management system is very useful for security management to identify the registered and unregistered vehicles. It can help the security management to block unregistered vehicles.

1.2   Problem Statement

Unregistered vehicle produces problems when students do not register their vehicle and use or duplicate other registered vehicle's sticker. The security guard having difficulties to identify whether the sticker is belongs to the original registered vehicle or not. The duplication of the sticker will not avoid the unregistered vehicle to enter UMP without being blocked by the security guards.

1.3   Objectives

i.   To design the student's vehicle registration system with QR code.

ii.   To develop the student's vehicle registration system with QR code.

iii.   To produce the official university vehicle's sticker and develop a student vehicle registration system.

1.4   Scope of Project

i.   This system will be used by UMP students.

ii.   UMP Security Department will act as admin to keep all the information of registered vehicles and produce vehicle stickers.

iii.   Admin will approve the registration of vehicle sticker that has QR code that will keep the name, matric number, phone number, session, vehicle plate number of the student and their residence.

1.5   Thesis Organization

In this Chapter 1, it discusses about simple introduction of the QR code which is widely used by the users. Problem statement in this chapter will show the problem with the current vehicle sticker. The project objectives set the goal of the vehicle sticker that need to be archive. Scope of proposed study is the area that involved.

The detailed explanation about the requirement and literature review will be discussed in chapter 2. This chapter also will discuss more detailed about problems that occurred in the current system.

A brief introduction to the system and methodology applied to the system will be described in this chapter 3. In chapter 3 also discover and find out what hardware and software is suitable to be used. The Gantt chart illustrates the planning of the project.

Chapter 4 will discuss about the implementation and testing of the project where the result of discussion will be specified.

The Conclusion of the project where constraint of the project and the future work will be discussed in chapter 5.

REFERENCES

Anderson, K. (2011). QR Codes in a Journal — Printing Little Computer Programs for
    Mobile Integrations. Retrieved from
    https://scholarlykitchen.sspnet.org/2011/01/31/qr-codes-in-a-journal-printing-little-
    computer-programs-for-mobile-integrations/

Chang, J. H. (2014). An introduction to using QR codes in scholarly journals. *Science
    Editing*, *1*(2), 113–117. https://doi.org/10.6087/kcse.2014.1.113

D.Loli, E. (2011). Vehicle identification, tracking and enforcement system. Los
    Angeles, CA (US). Retrieved from
    https://patents.google.com/patent/US8937559B2/en

Pala, Z., & Inanc, N. (2007). Smart parking applications using RFID technology. *RFID
    Eurasia, 2007 1st Annual*, 1–3.
    https://doi.org/10.1109/RFIDEURASIA.2007.4368108

Soon, T. J. (n.d.). QR Code. Retrieved from
    https://foxdesignsstudio.com/uploads/pdf/Three_QR_Code.pdf

Wave, D. (n.d.). History of QR Code. Retrieved from
    http://www.qrcode.com/en/history/

Wikipedia. (2013). QR code. *Online*, *3*(1), 25–32. Retrieved from
    http://en.wikipedia.org/wiki/QR_code

Wikipedia. (2018). Systems development life cycle. Retrieved from
    https://en.wikipedia.org/wiki/Systems_development_life_cycle