



**Faculty of Manufacturing Engineering**

**ONLINE BOOKING SYSTEMS TO MANAGE QUEUE AT  
ROAD TRANSPORT DEPARTMENT**

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**Master in Manufacturing Engineering**

**2016**

**ONLINE BOOKING SYSTEMS TO MANAGE QUEUE AT  
ROAD TRANSPORT DEPARTMENT**

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**A thesis submitted  
in fulfilment of the requirement for the degree of  
Master in Manufacturing Engineering**

**Faculty of Manufacturing Engineering**

**UNIVERSITI TEKNIKAL MALAYSIA MELAKA**

**2016**

## DECLARATION

I hereby, declared this report entitled “Online Booking Systems to Manage Queue at Road Transport Department” is the results of my own research except as cited in reference. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree

Signature : .....

Author's Name : .....

Date : .....

## APPROVAL

I hereby declare that I have read this report and in my opinion this report is sufficient in terms of scope and quality as a partial fulfillment of Master of Manufacturing Engineering (Industrial Engineering).

Signature :.....

Supervisor Name :.....

Date :.....

## **DEDICATION**

Every challenging work need self-efforts as well as support especially from those who were very close to our heart. My humble effort I dedicate to my sweet and loving father, Mr Jiga anak Jerai and mother, Mdm. Radang anak Madek thank you for your prayer and continuous support. And for my lecturers, thank you for the encouragement, guidance, and knowledge that make me able to get such success and honor. Finally, to all my friends and every participated person, I really appreciate your effort, thank you.

## ABSTRACT

Long waiting time has long been subjected as one of the main issues at the public sector service counter. This situation was not time justification and may trigger citizen to charge bad perceptions on the service provided which lead to downgraded reputation of the public sector. Road Transport Department (RTD) is one of the public sectors in Malaysia that has been experiencing the issue of excessive waits at their service counter. There were several alternatives that had been introduced to restrain this problem such as the implementation of e-government service through RTD official portal and providing other units to segregate demand such as commencement of other agencies including UTC and myEG. However, this situation still takes place and become one of the most pressing policy issues affecting RTD. Thus, the purpose of this study is to propose an online system that will aid in managing queue during the service and hence, to optimize the waiting time. There was few methods involved in order to achieve the objectives, including conducting observation, semi-structure interview and time study at RTD Bukit Katil, Melaka, develop the online system by using Adobe Dream Weaver, Adobe Cold Fusion and Oracle SQL Developer software, and verify and validate the system through questionnaire and usability study. The first online system is through online queue number booking system. Through this system, clients are able to book their queue number through online system. Besides that, this system also provides the waiting time duration to the clients so that they are able to present at the counter just in time before their service. The second proposal is by using an online queuing system. This system enables clients to book their appointments with the RTD staff according to the specific time. This system also allows client to come and to be attended on time. Through this system, in hope that the waiting time at the RTD could be optimize, besides improving the customer satisfaction and can be a reference for other government agencies to improve their services.

## ABSTRAK

*Masa menunggu yang panjang telah lama dilabelkan sebagai salah satu masalah utama yang dihadapi di kaunter servis kerajaan. Situasi ini bukan sahaja menyebabkan masa tidak dapat dimanfaatkan dengan sebaiknya, malahan turut menimbulkan persepsi kurang baik kepada pelanggan dan secara tidak langsung boleh menjejaskan reputasi jabatan. Jabatan Pengangkutan Jalan (JPJ) Malaysia merupakan antara agensi kerajaan yang turut mengalami situasi di mana pelanggan terpaksa menunggu lama untuk mendapatkan servis. Beberapa alternatif telah dilaksanakan untuk membendung situasi ini daripada terus berlaku, seperti pelaksanaan servis e-kerajaan melalui portal rasmi JPJ dan penubuhan unit lain seperti myEG dan Pusat Transformasi Rakyat bagi mengurangkan akitiviti daripada tertumpu di pejabat JPJ. Walaubagaimanapun, situasi ini masih lagi tetap berlaku dan telah menjadi permasalahan utama yang menjejaskan reputasi JPJ. Oleh hal yang demikian, tujuan utama kajian ini adalah untuk menyediakan sistem atas talian untuk menguruskan barisan menunggu pelanggan dan seterusnya mengoptimumkan masa menunggu. Antara kaedah yang digunakan untuk mencapai tujuan utama kajian ini termasuk, melaksanakan pemerhatian, temuduga dan kajian masa di JPJ Bukit Katil, Melaka, membuat sistem atas talian menggunakan perisian Adobe Dream Weaver, Adobe Cold Fusion and Oracle SQL Developer dan memperakui penggunaan sistem melalui soal selidik dan ujian kebolegunaan. Sistem yang pertama adalah untuk mengambil nombor giliran secara atas talian. Melalui sistem ini, pelanggan dapat membuat tempahan nombor menunggu giliran secara atas talian. Selain itu, sistem ini juga turut memaklumkan tentang jangka masa pelanggan harus berada di kaunter bagi memastikan pelanggan bersiap sedia sebelum mendapatkan servis. Proposal kedua adalah sistem untuk membuat temujanji secara atas talian. Melalui sistem ini pelanggan dapat menempah slot untuk mendapatkan servis mengikut kesesuaian masa mereka. Sistem ini membolehkan pelanggan datang dan diberi perkhidmatan tepat pada masanya. Diharapkan melalui pelaksanaan kedua-dua sistem ini, masa menunggu di JPJ dapat dioptimumkan, menambah kadar kepuasan hati pelanggan terhadap servis dan menjadi rujukan untuk agensi kerajaan yang lain untuk mempertingkatkan kualiti servis mereka.*

## **ACKNOWLEDGEMENT**

Thanks God for the strength throughout this journey.

Firstly, I would like to express my deepest gratitude to my supervisor, Dr. Efendi bin Mohamad for constant guidance, constructive comment and invaluable idea throughout this project. In addition to that, I also would like to thanks respective lecturers and staff of Road Transport Department, Bukit Katil, Melaka for ideas and cooperation in completion of this project. Deepest thanks and appreciation to my family member for their continuous moral support and encouragement throughout this journey. Not forgotten, my friends especially my classmates for the ideas, suggestion, guidance and support throughout this project and during report preparation. Last but not least, I would like to thanks everyone that have involved directly or indirectly in making this project succeed.



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## **LIST OF ABBREVIATIONS**

RTD -	Road Transport Department
SMS -	Short Messaging System
ID -	Identification
IOS -	Iphone Operating System
No. -	Number
JPJ -	Jabatan Pengangkutan Jalan

## **CHAPTER 1**

### **INTRODUCTION**

The first section of this report described the overview of the studies, which begins with the motivation of studies, followed by a brief introduction on the topic, the objectives as well as the scope or limitation of the studies. Towards the end of this chapter, the overall report structure is briefly explained to ensure a better visualization of the entire studies.

#### **1.1 Motivation of Study**

The aim of this study is to propose a new method in order to reduce the amount of waiting time or queue at the public sector service counter. Long waiting time have long been subjected as one of the main issues at public sector services. In some situations, clients need to spend several hours in line just to do a simple transaction service that can actually be done in less than a minute. In fact, this condition was not time vindication. In addition to that, this situation may trigger the citizen to charge bad perception on the service provided which in turn downgraded the reputation of public service sector.

#### **1.2 Background of Study**

After achieving independence in 1957, Malaysia government has experienced a few changes especially in term of improving public service deliveries to nation with the inauguration of "Look East Policy" and "Malaysia Incorporated and Privatization Policy" which were introduced by Tun Mahathir in early 1980s (Agus et al., 2007). In addition to that, several efforts have been made in Malaysia public sector focusing on assessing personal

and organizations accomplishment via Annual Work Objective (SKT), competency evaluation under Malaysia Pension Scheme (SSM), assessment on efficiency of Quality Management System through MS ISO 9000 and Total Quality Management (TQM), ability to resolve problem innovatively through Quality Circle Group (KMK) and benchmark best practices through Quality Awards in Civil Service (Zakaria et al., 2011). This policy was formed with the aim to increase productivity and efficiency of public sector.

Road and Transport Department (RTD) is among the service provider in Malaysia public sector. RTD had increasingly encumbered with numerous tasks in order to improve the service level in corresponding to significant improvement in the transportation system in country since 1980's (RTD Portal, 2016). Due to the continuous daily demand from clients, RTD need to keep improving the management system, so that the organization is able to utilize the current resources efficiently. Eventually, the aim of this study is to propose a new method to manage the frequent issue faced by RTD during daily operation and hence minimize the limitation of current process.

### **1.3 Problem Statement**

Most government agencies nowadays are facing with similar dilemma, which is dealing with the problem of an excessive waits. In fact, it is a peculiar issue faced by the government sector as the staffs need to attend many clients, as hundredth of customers come to complete their transaction every day. Majority of the customers are not satisfied with the present service and the issue of long waiting hours has become one of the most pressing policy issues affecting our government sector.

The Star news on December 2015 have reported that the Minister of Transport, Datuk Seri Liow Tiong Lai had made a surprise check at RTD Wangsa Maju as shown in Figure 1.1 in respond to a complaint which he received from Twitter and had discovered that the

queue for license renewal was two times more than the desired time. Aside from the long waiting time, he also noticed the other issue that occurred due to the long queue which is limited parking space. RTD State Director, Saiful Azzri Hamzah in Sinar Harian newspapers, January 2014, also acknowledged the situation. However he stated that the issue occurred was due to many clients come simultaneously at one time. He also mentioned that, RTD could not open more counters at the shopping mall as they need to consider cost factor and many others factor pertaining to it.



Figure 1.1: Dato Seri Dr. Liow visit at RTD Wangsa Maju

There are a few approaches that have been taken to control the issue and one of the approaches implemented was through the utilization of the current technology in the information system. Malaysia public service department have focused on “electronic government” (“e-government”) (Teicher et al., 2002) as an attempt to enhance quality by offering greater availability. However, regardless the developing prevalence of quality principle in government agencies, the long waiting time issue is still not studied well (Agus et al., 2007). Moreover, despite the automation processes, advancement of information system and training interventions, the quality of public sector service delivery is quite

declining, since annually service degrading by considerable amounts (Acland, 2005). Even though the efforts of increasing key performance indicator produced effective adjustment in assessing the output of the government service provider, yet public service still encountered unprecedented burden to enhance service level (Zakaria et al., 2011). This feedback has created an option for the organization to restructure and transform, as an effort to fix respective management issues and improve the performance of government bureaucracies.

#### **1.4 Objectives**

The objectives of this study are as follow:

- i. To study the service and current process flow at Road Transport Department.
- ii. To identify the problem related to service at Road Transport Department.
- iii. To propose methods to manage queue through online system.

#### **1.5 Scopes**

Road Transport Department provides 5 types of service transactions which comprise of i) Transaction for Driver License, ii) Transaction for Private Vehicle registration and License, iii) Transaction for Commercial Vehicle Registration and License, iv) Enforcement Transaction and v) Transaction for Automotive Engineering. However, this study only covers the first three services out of the five services offered. This study only covered the counter activities issues which were conducted at Block C, Road Transport Department Bukit Katil, Melaka. The building was a two level office, the ground floor involved the transaction for driver license meanwhile the first floor involved the transaction for private vehicle registration and license as well as transaction for commercial vehicle registration and license. The permission letter to conduct the project in RTD's counter is attached in Appendix A.

## **1.6 Summary of Report Structure**

This report comprises of five chapters. Chapter 1 contains a brief introduction related to general idea of the study meanwhile the purpose of this study is stated in the problem statement, which is based on the issue encountered by the JPJ's counter. There are 3 objectives that need to be achieved towards the end of this project with the main purpose to improve the waiting time face by client during service at RTD. Aside from that this chapter also described the scope or limitation of the studies.

Chapter 2 provides the critical information and comprehensive theoretical review on the subject related to the project title based on the previous studies by other scholar. Chapter 3 described the research methods and steps taken to conduct the research and a summary of method used to achieved the objective of the study.

Chapter 4 presents the outcome of this project which also includes the analysis on the data. This chapter was presented based on the objectives stated in chapter 1, accordingly. Chapter 5 covered the overview of this project, which also include the significance achievement of this studies and suggestion on future studies based on the limitation of attainable outcome.

## CHAPTER 2

### LITERATURE REVIEW

This chapter described critical and comprehensive review on the literature related to this project. The keywords emphasized in this chapter are regarding service, public service quality, queueing, method to improve queueing and time study. The materials is obtained mainly from journals, articles, books and online resources.

#### 2.1 Service

Grönroos (2001) defines service concept as an activity or series of activities of a more or less intangible nature that normally but not necessarily, take place in the interaction between the customer and service employees and/or physical resources or goods and/or systems of the service provider, which provide solutions to customer problems. From this definition, it can be concluded that service is comprised of three core dimensions which are: i) activities, ii) interactions and iii) solutions to customer problems. In addition to that, service also can be defined as the activity to bring value (satisfaction), not only to the recipients (customers) but also the providers (employees) by optimal management of a set of available resources (Takagi, 2014). Meanwhile, according to Vargo and Lusch (2004 a, b), service is the application of specialized competences knowledge and skills through deeds, processes, and performances for the benefit of another entity or the entity itself.

Service can be divided into two element, tangible and intangible. Filipino (1988) stated that, the tangible elements of services include the premises used in service provision (location, maintenance, interior, functionality, and cleanliness), the physical appearance of