



## **UNIVERSITI TEKNIKAL MALAYSIA MELAKA**

### **DESIGN AND DEVELOPMENT OF VISITOR APPOINTMENT APPROVAL MODULE AND DATA ANALYTICS MODULE OF WEB-BASED SASARAN PENTING VISITOR MANAGEMENT (SPVM) SYSTEM FOR TELEKOM MALAYSIA, MELAKA**

This report is submitted in accordance with the requirement of the Universiti Teknikal Malaysia Melaka (UTeM) Bachelor of Computer Engineering Technology (Computer Systems) with Honours.

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**BORANG PENGESAHAN STATUS LAPORAN PROJEK SARJANA MUDA**

**Tajuk: DESIGN AND DEVELOPMENT OF VISITOR APPOINTMENT APPROVAL MODULE AND DATA ANALYTICS MODULE OF WEB-BASED SASARAN PENTING VISITOR MANAGEMENT (SPVM) SYSTEM FOR TELEKOM MALAYSIA, MELAKA**

Sesi Pengajian: 2018

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## DECLARATION

I hereby, declared this report entitled DESIGN AND DEVELOPMENT OF VISITOR APPOINTMENT APPROVAL MODULE AND DATA ANALYTICS MODULE OF WEB-BASED SASARAN PENTING VISITOR MANAGEMENT (SPVM) SYSTEM FOR TELEKOM MALAYSIA, MELAKA is the results of my own research except as cited in references.

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## APPROVAL

This report is submitted to the Faculty of Electrical And Electronic Engineering Technology of Universiti Teknikal Malaysia Melaka (UTeM) as a partial fulfilment of the requirements for the degree Bachelor Of Computer Engineering Technology (Computer Systems) With Honours. The member of the supervisory is as follow:

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## ABSTRACT

This project is to design and development a web-based application of visitor management system that consist of visitor appointment approval status and data analytics. The client for this project is from Security Management Department of Telekom Malaysia, Melaka. This has been proposed to overcome the problem of current management for visitor at Sasaran Penting location that available in Melaka. In the current system, the management does not keep the data of visitor and security at the check in and check out is less effective. It also wants to overcome the time to process the applicant approval status and improve the flow of process of applicant when applying the visit. There are several approval and communication medium at the current system, the communication medium that had been used is email. Applicant also has a rough time to get a feedback from the person in charge because there is no process to know the current status of application. The current system makes it harder to generate a report and gather the data to make data analytic because of the data is in hardcopy. Based on the client problem statement, this project will develop and design a system with three subsystems based on the client requirement to overcome the problem that has been stated. This project is only emphasis on two of Sasaran Penting locations of Telekom Malaysia in Melaka region which is Earth Satellite Station at Lendu and Submarine Cable Station at Pengkalan Balak as requested by security personnel.

## ABSTRAK

Projek ini adalah untuk membangunkan aplikasi berasaskan web sistem pengurusan pengunjung yang terdiri daripada status kelulusan pengunjung dan analisis data. Pelanggan projek ini adalah dari Jabatan Pengurusan Keselamatan Telekom Malaysia, Melaka. Mereka mencadangkan untuk mengatasi masalah pengurusan semasa bagi pengunjung di lokasi Sasaran Penting yang terdapat di Melaka. Dalam sistem semasa, pihak pengurusan tidak menyimpan data pelawat dan keselamatan semasa daftar masuk dan daftar keluar ialah kurang berkesan. Ia juga mahu mengatasi masa untuk memproses status kelulusan pemohon dan meningkatkan aliran proses pemohon apabila memohon lawatan itu. Terdapat beberapa kelulusan dan medium komunikasi pada sistem semasa, medium komunikasi yang telah digunakan adalah e-mel. Sistem semasa menjadikannya lebih sukar untuk menjana laporan dan mengumpul data untuk membuat analisis data kerana data adalah dalam bentuk dokumen. Berdasarkan pernyataan masalah pelanggan, projek ini akan membangunkan sistem dengan tiga sub sistem berdasarkan keperluan pelanggan untuk mengatasi masalah yang telah dinyatakan. Projek ini hanya memberi penekanan kepada dua Sasaran Penting lokasi Telekom Malaysia di rantau Melaka yang merupakan Stesen Satelit Bumi di Lendu dan kabel Stesen Submarine di Pengkalan Balak seperti yang diminta oleh anggota keselamatan.

## **DEDICATION**

This thesis is dedicated to my family, which taught me that the best kind of knowledge to have is that which is learned for its own sake. It is also dedicated to my supervisor and co supervisor, who taught me that even the largest task can be accomplished if it is done one step at a time.



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# TABLE OF CONTENTS

<b>ABSTRACT.....</b>	<b>v</b>
<b>ABSTRAK.....</b>	<b>vi</b>
<b>DEDICATION.....</b>	<b>vii</b>
<b>ACKNOWLEDGEMENTS.....</b>	<b>vii</b>
<b>TABLE OF CONTENT.....</b>	<b>iii</b>
<b>LIST OF FIGURES.....</b>	<b>vi</b>
<b>LIST OF TABLES.....</b>	<b>vii</b>
<b>CHAPTER 1: INTRODUCTION.....</b>	<b>1</b>
1.1. Introduction .....	1
1.2. Background .....	2
1.3. Problem Statements .....	3
1.4. Objectives .....	3
1.5. Scopes.....	4
1.6. Expected Results .....	5
<b>CHAPTER 2: LITERATURE REVIEW.....</b>	<b>6</b>
2.1 Introduction .....	6
2.2 Company Background .....	7
2.2.1 Telekom Malaysia Berhad .....	7
2.2.2 Telekom Malaysia,Melaka (MITC) .....	9
2.2.3 Security Management Department.....	9
2.2.4 Sasaran Penting Information .....	10
2.2.5 Current System in Managing Visitor to Sasaran Penting Location .....	12
2.2.6 Problem in current system.....	13
2.3 Software Implementation .....	14
2.3.1 Software Development Model .....	15
2.3.1.1 Waterfall model.....	15

2.3.1.2 V-shaped model .....	17
2.3.1.3 Spiral model .....	18
2.3.1.4 Agile model .....	19
2.3.1.4.1 Extreme Programming .....	21
2.3.2 Database Management System .....	22
2.4 Web based application .....	25
2.4.1 PHP .....	28
2.4.1 JSP .....	29
2.4.1 ASP.NET .....	29
2.5 Visitor Management System .....	29
2.5.1 LobbyGuard Visitor Management System .....	30
2.5.2 Visitor Management Software .....	30
2.5.3 Visitor Management System for Asia Pacific University(APU) .....	31
2.5.4 iFLEXi Visitor Management System .....	31
2.6 Conclusion .....	32

**CHAPTER 3: METHODOLOGY.....34**

3.1 Introduction .....	34
3.2 Methodology approach .....	34
3.3 Phase 1: System Requirement .....	35
3.4 Phase 2: Software Requirement .....	37
3.4.1 Functional Requirement .....	37
3.4.2 Non-functional Requirement .....	38
3.4.3 Overall SPVM .....	39
3.4.4 Visitor Appointment Approval Module .....	41
3.4.5 Visitor Data Analytic Module .....	42
3.4.6 Use Case Diagram .....	42
3.5 Phase 3: Architecture Design .....	48
3.6 Phase 4: Details Design .....	49
3.6.1 Database Design .....	53
3.7 Phase 5: Code Development .....	60

3.8	Phase 6: Testing nad Integration .....	60
3.9	Phase 7: Maintenance.....	61
3.10	Costing.....	61
3.11	Gantt chart .....	62
3.12	Summary .....	63
 <b>CHAPTER 4: RESULT AND DISCUSSION.....</b>		<b>64</b>
4.1	SPVMS Data Analytic Module .....	64
4.2	SPVMS Appointment Approval Module .....	67
4.3	Analysis .....	70
4.3.1	Performance Test .....	72
4.3.2	Test case .....	74
4.2	Limitation .....	78
 <b>CHAPTER 5: CONCLUSION AND RECOMMENDATION.....</b>		<b>79</b>
5.1	Conclusion.....	79
5.2	Recommedation.....	79
5.3	Commercialization potential .....	80
 <b>REFERENCES.....</b>		<b>81</b>
 <b>APPENDIX.....</b>		<b>83</b>

## LIST OF FIGURES

Figure 2.1: TM Melaka branch .....	9
Figure 2.2: The organisation chart for security department at TM Melaka .....	10
Figure 2.3: The flow chart for current system.....	13
Figure 2.4: The waterfall model.....	16
Figure 2.5: The V-shaped model.....	18
Figure 2.6: The spiral model .....	19
Figure 2.7: The agile model .....	21
Figure 2.8: Extreme programming model.....	22
Figure 2.9: Comparison for various database system (Islam et al. 2017).....	24
Figure 2.10: Comparison for different parameters (Islam et al. 2017) .....	25
Figure 2.12: Example of server-side scripting .....	27
Figure 2.11: Example of client-side scripting.....	27
Figure 3.1: Flow Chart of Waterfall life cycle.....	35
Figure 3.2: Use Case Diagram for Visitor Appointment Approval Module.....	43
Figure 3.3: Use Case Diagram for Data Analytic Module.....	46
Figure 3.4: Architecture Design.....	48
Figure 3.5: Flowchart of Approval Module and Data Analytic .....	49
Figure 3.6: Log in page for all user.....	50
Figure 3.7: Landing page of the user with the access level of two .....	51
Figure 3.8: Pending status menu to be approved .....	51
Figure 3.9: Details information about the visitor .....	52
Figure 3.10: Data analytic that will be generate yearly .....	52
Figure 3.11: Generating a report using pdf as the extension.....	53
Figure 3.12: Show the relation of table in the database .....	59
Figure 4.1: Bar graph for total visitor that has visited .....	65
Figure 4.2: Total application status.....	65
Figure 4.3: The organisation that applied to visit .....	66
Figure 4.4: Show the organisation had visited.....	66
Figure 4.5: Display the counter for each process.....	67
Figure 4.6: Show the current pending applicant .....	68
Figure 4.7: Process to change the application status.....	69
Figure 4.8: List of approved application.....	69

Figure 4.9: List of rejected application .....	70
Figure 4.10: Load test for fifty users at concurrent time .....	73
Figure 4.11: Load test for one user for each process .....	74
Figure 4.12: Update status for Admin.....	75
Figure 4.13: Update status for Station Admin (Pengkalan Balak).....	75
Figure 4.14: Update status for Station Admin (Bumi Melaka).....	76
Figure 4.15: View application status as Public Relation .....	76
Figure 4.16: View the statistics.....	77

## LIST OF TABLES

Table 2.1: The advantage and disadvantage of waterfall model .....	16
Table 2.2: The advantage and disadvantage of V-shaped model.....	17
Table 2.3: The advantage and disadvantage of spiral model .....	19
Table 2.4: Features and difficulties in agile model .....	20
Table 2.5: The advantage and disadvantage of agile model .....	21
Table 2.6: The advantage and disadvantage for both methods .....	26
Table 2.7: Information for each project that use PHP.....	28
Table 2.8: Comparison of visitor management system.....	31
Table 3.1: Software Requirements for User.....	36
Table 3.2: Software Requirements for Developer.....	36
Table 3.3: Functional Requirement.....	37
Table 3.4: Non-functional Requirement .....	38
Table 3.5: Use case description for visitor appointment approval.....	43
Table 3.6: Show the use case description of data analytic module.....	46
Table 3.7: Table Organisation in database .....	55
Table 3.8: Table Location in database .....	55
Table 3.9: Table Visitor in database .....	56
Table 3.10: Table Vehicle in database .....	56
Table 3.11: Table Login in database .....	57
Table 3.12: Table Access Level in database .....	57
Table 3.13: Table Staff in database .....	58
Table 3.14: Table Title in database .....	58
Table 3.15: Gantt Chart.....	62
Table 4.1: Comparison of current process with web system .....	70

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

A visitor management system usually has been implemented to certain places that will enhance security while tracking the log of visitor during the visit. When using any visitor management, it will become more user friendly and make it more efficient and effective when gathering the data, making a report and increase the security of the location. In this project, we were asked to develop a visitor management system for certain location. This system will be implement by Telekom Malaysia (Melaka) to “Sasaran Penting” location. The client that asked to design and develop a visitor management system is the security management from Telekom Malaysia (Melaka). The visitor management system that will be develop is call by “Sasaran Penting Visitor Management System” (SPVMS). The project development contains several module and method to uses. The method is web-based application, desktop application and mobile application. In web-based application has several modules such as admin module, visitor module, approval module and data analytic module. In this paper the module that will be cover is approval module and data analytic module. Furthermore, in approval module it will produce a process to update the status of applicant whether to approve or reject with the reason why reject the application. Each approval will generate a documentation to make it more efficient compared to the current system that only using email as communication medium between person in charge with the applicant.



## 1.2 Background

The proposed system will contain four modules, and the works are delegated between two developers. In this project, a visitation application management module and data analytic modules will be developed. After completed these modules will be integrated with other two module and whole system test will be executed. These integration tests are very important to ensure there is no broken line in the system. The proposed system will be replacing the existing manual procedures which are tedious, taking long processing time, hassle and not eco-friendly. Due to the inflexibility of using email as the medium and hardcopy as the reporting, it makes harder to gather data of visitor and the time taken to check every detail in the email and hardcopy is longer.

At the end of this project it can produce an efficient, user friendly, informative and eco-friendly, informative and eco-friendly will be developed to facilitate the client. The user-friendly mean how easy the system to be used and understand. Efficient means the system helps the person in charge to monitor, update and take action to all visitation application in real time using any devices as long there is an internet connection. Informative means this system will provide a reporting tool and able to generate dashboard and any report regarding visitation in real time anytime. Eco-friendly means this system all documents involve in the application process will be autogenerated, digital signed and view from the system. No more papers are required and it may save cost and save the environment.

Each location has its own priority objectives and can be divided into two. Priority one, if the function has been destroyed it will severely damaged and cause adverse effects on nation economy and nation security or government functions. Priority Two, also an important target that it is difficult to replace if the function is destroyed, it also has adverse effect on the national security, economy and government function. There are three locations for “Sasaran Penting” with Priority

Two, which is of Earth Satellite Station at Lendu and Submarine Cable Station at Pengkalan Balak.

### **1.3 Problem Statement**

In the current system, it is inefficient and ineffective process to gather information and process. The process will take about a week from the applicant date of submission. In current system the time taken to make approval status of applicant is late because of each process involve using only email as communication medium. When applicant apply to visit, it will email the application to public relation(PR), then PR will check the date with Station Admin (SA) next it will inform to security management(SM), when SM has been informed their will send a copy of application to State General Manager (SGM). When approval letter has been approved by the SGM it will send back to SM department and it will send to applicant, SA and PR.

Each process will take about one day and for status approval from SGM it will take more than one day to process. The applicant letter that need to has SGM signature will take more than one day to process. In other word, this process will require about a week or more to complete the process of approval. In statistics of visitor, the current practices do not have any effective method because all the data is in hardcopy form it required a lot of time to make some statistics. When developing the application approval module, the feedback of applicant approval will be reduced to one or two days, because of the officer need to make approval usually work on field it will make the approval been delay due to officer need to come into the office to sign the letter it also has many approval level and dependent to each other.

The data analytic module will help generate a more effective and faster statistics due to the data has been stored inside the databases. From the listed problem thus, this project will design and develop the approval and data analytic modules for web based Sasaran Penteng visitor management system.

#### **1.4 Objective**

There are several objectives for the implementation of the system. The objective will be list below:

1. To design and develop a Web-Based Sasaran Penteng Visitor Management System for Security Management of Telekom Malaysia (TM), Melaka.
2. To conduct a functionality testing and a performance testing onto the developed web application to analyze and confirm all identified system requirement are meet.
3. To provide a user friendly, efficient, reliable and cost-effective system to TM to manage visitation application and produce reporting data.

#### **1.5 Scope**

The scopes of this project are as follow:

1. Only emphasis on two of Sasaran Penteng locations of Telekom Malaysia in Melaka region which is Earth Satellite Station at Lendu, Submarine Cable Station at Pengkalan Balak.
2. To design and development two system modules: visitor appointment approval module and data analytic module in Sasaran Penteng Visitor Management (SPVM) system.
3. Integrate these modules with another modules and subsystem in SPVM system.
4. The proposed system is developed for any web browser on desktop only and it required internet connection.

## 1.6 Excepted Result

This project is proposed to assist the staffs in Telekom Malaysia (Melaka) in managing the visitor to “Sasaran Penting” location in Melaka region and generate analytical report from visitor data. This system is divided into several modules. In this project, it only focuses on designing and developing two main modules which are visitor appointment approval module and data analytics module. Designing will include architecture, database and GUI. In other word, it an Integrated Web-based SPVM System with Visitor Appointment Application Module and Visitor Analytics Module.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Introduction

Literature review is a process to gather information and make evaluation for particular topic, whereby it must be done first before the start of development of project. By gathering the information, it can find the flaws of current system and improvise into your own project that can overcome the flaws in certain area of the project. There are several reasons why we need to conduct literature review that is, it can give feedback of our current area of studies, to make a conclusion based on information that has been gather throughout this process, it also helped to identify similar project within this project development, lastly by comparing the current system and compare to our project it can make further suggestion that will make it a better project to be implement. This chapter will revise about background of company that is Telekom Malaysia, the current system that manage the visitor to certain location this system currently used manual process for Telekom Malaysia (Melaka), and developing the suitable system based on clients need.

## **2.2 Company Background**

### **2.2.1 Telekom Malaysia Berhad**

According to tm (2017), it states that Telekom Malaysia Berhad (TM) has been a Malaysia's Convergence Champion and is leading on Converged Communications Services Provider. This company also offer a several services such as offers an overall communication services and their solution such as in telephone and broadband services, and internet service. In this country which is Malaysia, TM is the number one in the market for communication, whereby it also has competitive environment such as other mobile telecommunication that offer similar services. This company also make a priority based on customer service to strengthen the customer experience whereby it can help to boost their service quality, in the same time it also concentrates to gain more efficient operation and productivity. TM also want to make a communication service provider that help keep people connected by using various ways.

By taking an advantage on their company vast connectivity globally, network framework and their collective expertise. Moreover, TM also can launch as a regional Internet connection point and act as digital gateway for South East Asia region. TM also has been rewarded as an award-winning model corporate citizen committed to good governance and transparency. Their company also make an oath to provide the integrity of their processes, people and reputation as well as the sustainability of their operations. Meanwhile their Corporate Responsibility principles to emphasize the response performance based on four main domains in the marketplaces. Workplace, community and the environment. By focusing on ICT, this company make encourage an improvement to major platform such as education, community and environment by using the Reaching Out programs.

Furthermore, TM is expanding by making investment in webe and TM ONE to visualize their aspirations which is Convergence and “Go Digital” that will move further in connectivity services into a digital service. By approaching a holistic approach this company is making the process optimization and opening a new business opportunity while covering the customer experience. After that, by implement the digitally aware and smarter workforce it will help on digital transformation of TM and increase the Malaysia’ digital economy.

This company implement a several supports that hopefully help serving customers with merging recommendation via Smarter Living, Smarter Businesses, Smarter Cities, Smarter Communities and a Smarter Nation. This process will distribute a consistent digital experience and integrate business solution to help indulge individual lifestyle and business communication needs by approaching “Life and Business Easier for a Better Malaysia” TM (2017).

Their vision is to make life and business easier for a better Malaysia and for their mission is for customers, through converged lifestyle communication experiences, for business support with integrated solution by collaborating and for nation is supporting socioeconomic development through several ways that is education, innovation and social initiatives TM (2017).

### 2.2.2 Telekom Malaysia, Melaka (MITC)

TM has many branches all over in this country, our project is by dealing to TM Melaka whereby it is in MITC, Ayer Keroh that was launched by Tuan Yang Terutama Tun Mohd Khalil bin Yaakob, President of Melaka in 2008. This branch has several departments and our project client is on security management that want to improvise the current system into a better and efficient system. In the senior management for this branch is to conduct discussion, planning production and management related project while instruction and division of labour is technical implementation.



Figure 2.1: TM Melaka branch

### 2.2.3 Security Management Department

For this project it deals with the security management department whereby their ask to develop a system for overcome the problem in the current system. Security department will be the department that manage their asset and property of security in thee company that will be assisted through the security protection. This department has security protection that will ensure the safety of assets, documents, information and persons by established the security system. For the job and responsibility, the security