**BORANG PENGESAHAN STATUS TESIS**

JUDUL: ENCHANCING EKO-TECH07 SYSTEM WITH SECURITY DATA ELEMENT AND CONNECTION VIA HAND PHONE (EKO-TECH07)

SESI PENGAJIAN: 2006/2007

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# ENCHANCING EKO-TECH07 SYSTEM WITH SECURITY DATA ELEMENT AND CONNECTION VIA HAND PHONE (EKO-TECH07)

**MUHAMMAD YAAKUB BIN RAMLI**

This report is submitted in partial fulfillment of the requirements for the Bachelor of Information and Communications Technology (Networking)

**FACULTY OF INFORMATION AND COMMUNICATIONS TECHNOLOGY**
**UNIVERSITI TEKNIKAL MALAYSIA MELAKA**
**2007**

## DECLARATION

I hereby declare that this project report entitled

**ENCHANCING EKO-TECH07 SYSTEM WITH SECURITY DATA ELEMENT AND CONNECTION VIA HAND PHONE (EKO-TECH07)**

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

STUDENT : _____ Date: _____

(MUHAMMAD YAAKUB RAMLI)

SUPERVISOR : _____ Date: _____

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# DEDICATION

To my beloved parents…

Thanks for giving me a lot of your support,

both of you are my inspiration and encouragement will continue to guide me always.

## ACKNOWLEDGEMENT

**Assalamualaikum W.B.T**

**In the name of Allah the Almighty and most Merciful**

I would like to praise upon Allah for letting me complete my PSM I project on time and with success. I would like to express my deep personal appreciation to the all individual who has contributed in order this Projek Sarjana Muda 1 (PSM1) whether directly or indirectly.

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Finally, I wish to thank to my classmate and all friends for their cooperation, comments, advice contribution and support. The competition of this project would not have been successful without support, helps and encouragement from various people. Big thank to my friend, who assisted me throughout the project with their supportive attitude and engorgements.

# ABSTRACT

This project is developed to enhance the capability of current system (EKO-TECH05) which was developed in year 2005 and will call as EKO-TECH07. This system is a tourism ticket management system for Malacca. This system is consisting of four main modules, which are registration module, administrator module, booking module and the search module. For each main module, it contains with sub modules i.e. examples information update, ticket booking and payment. EKO-TECH07 is upgraded with the security option for securing the data and running in web-based environment using network connection. Elliptic Curve Cryptography (ECC) is an encryption technique that used to encrypt the data before storing into the database. EKO-TECH07 can be accessed online or using hand phone. This project used prototype methodology to develop EKO-TECH07 because the enhancement is based on the weakness of the current system and the user requirements. The system analysis is done by analyzing the existing EKO-TECH05 system and the one that will be enhanced. As a conclusion, this system will be valuable and can be increase security characteristic for securing the data before stored in database. In this document more information about this project will be detailed.

# ABSTRAK

Projek ini adalah merupakan satu projek yang mana meningkatkan keupayaan daripada projek yang sebelumnya. EKO-TECH05 adalah sebuah sistem pengurusan tiket pelancongan bagi negeri Melaka. EKO-TECH05 adalah satu sistem yang dibangunkan dalam tahun 2005 dan dalam projek ini, sistem akan di panggil EKO-TECH07. Di dalam sistem ini terdapat beberapa modul yang tertentu. Antara modul yang terdapat dalam sistem ini ialah modul pendaftaran, modul admin, modul tempahan, dan modul carian. Di dalam setiap modul terdapat beberapa lagi sub-sub modul seperti kemas kini maklumat, tempahan tiket dan pembayaran. Projek ini dijalankan adalah untuk menaik taraf daripada sistem yang sebelumnya. Modul dan elemen yang dipertingkatkan adalah elemen keselamatan bagi keselamatan data dan elemen *network* iaitu menghubungkan dengan *network based* teknologi. Dalam elemen keselamatan data, projek ini adalah menggunakan pendekatan teknik *encryption*. Manakala bagi *network based* teknologi pula, projek ini menggunakan pendekatan *online* sistem dan menghubungkan sistem dengan telefon bimbit. Metodologi pembangunan sistem ialah metodologi prototaip. Ini kerana metodologi yang membenarkan pengguna mencuba prototaip sistem sebelum menggunakan sistem yang sebenar. Pembangunan sistem ini menggunakan teknik SDLC dengan pembangunan dilakukan fasa demi fasa. Analisa sistem telah dilakukan dengan menganalisis sistem sedia ada dan menganalisis modul yang hendak dipertingkatkan. Secara kesimpulannya sistem ini dapat meningkat nilai pada sistem ini di samping dapat meningkatkan ciri-ciri keselamatan bagi data. Di dalam dokumen ini menerangkan projek ini dengan secara terperinci.

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| | |
|---|---|
| **UTeM** | **Universiti Teknikal Kebangsaan Malaysia** |
| **EKO-TECH** | **Sistem Pengurusan Tiket Pelancongan Negeri Melaka** |
| **RSA** | **RSA Encryption Algorithm** |
| **DES** | **Data Encryption Standards** |
| **ECC** | **Elliptic Curve Cryptography Algorithm** |
| **SDLC** | **Software Development Life Cycle** |
| **DFD** | **Data Flow Diagram** |
| **IFP** | **Integer factorization problem** |
| **DLP** | **Discrete logarithm problem** |
| **DSA** | **Digital Signature Algorithm** |
| **ECDLP** | **Elliptic curve discrete logarithm problem** |
| **AES** | **Advance Encryption Standard** |
| **NIST** | **National Institute of Standards and Technology** |
| **PHP** | **Hypertext Preprocessor** |
| **PK** | **Primary Key** |
| **FK** | **Foreign Key** |

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# CHAPTER 1

# INTRODUCTION

## 1.1 Introduction

This chapter explain briefly all the processes in existing EKO-TECH05 system. The developer must recognize the problem of the current system by doing some study. Then the developer can state the objectives of the system which are solution of the system scope like user, modules and functions of this system which explain categories of user and modules that will be identified. Generally, the developer must identify the project significance to the end users and the area of study and the expected output as conclusion.

## 1.2 Project Background

Computer networking is one of the major fields in the world of Information Technology (IT). Not only that it provides connectivity to wired network, it also

*connects users all over the world wirelessly with all the latest technology evolving.* Among the devices used to connect between networks are routers, switches and hubs.

In this project, an enhancement system will be developed known as web based technology security system and view with latest connection. EKO-TECH05 is one project for the tourism at Malacca, when EKO-TECH05 is a *Sistem Pengurusan Tiket Pelancongan Negeri Melaka* project. EKO-TECH05 has a ticket reservation module for tourism, beside than this reservation payment is using credit card.

EKO-TECH05 is not providing the security element for securing their data. Because on this EKO-TECH05 created it's just developing a one web based basic project requirement. During analysis done on the EKO-TECH05, system like *Pengurusan Tiket Pelancongan Negeri Melaka* it found that the security is mostly important. For example in the transaction module and login module, the data is important to be secure.

In this project, EKO-TECH05 will be enhanced or upgraded with the data information security and network based technology and EKO-TECH05 will be called EKO-TECH07. This improvement is an encryption data for the secret and confidential data to make sure the data storing in the data base is perfectly safe. For network based technology in this system is a user can online access using the internet connection. Beside that, user also can access with their hand phone with 3G/WAP/GPRS technology. In this case EKO-TECH07 is easier to access every where every time.

### *1.3 Problem statement*

Today, all business activities have using the computer; mostly system in Malaysia has using the computer system. It so many aspect to repair-it in the online system or web based technology beside the normal characteristic for the web based. With the current method, in the EKO-TECH05 system now, two problems arise:

1. **EKO-TECH05 now is not secure because secret data like password and credit card pin number is not encrypted.**

Basically in the web based system, the data like password, the secret information, has been store in the system database can be viewed or known for the system admin. The system admin also a human being and cannot be 100% to hold the secret information. The secret information like be an account number, pin number, and also username and password to login the system.

2. **EKO-TECH05 now is running standalone system.**

Beside that, online technology is widespread in Malaysia. Today the latest connection is using internet and wireless connection, i.e. using their hand phone like 3G, WAP, and GPRS. Therefore, this system need for upgrading into network environment, user friendly and easy to access anywhere anytime.

### 1.4 *Objective*

The objectives of this project are:

i. To enhance EKO-TECH05 system and come out as an EKO-TECH07. EKO-TECH07 will be enhanced with the security data option and using the network based technology, like internet connection and wireless connection.

ii. To integrate the EKO-TECH07 into network based technology. In this project, EKO-TECH07 has a running in the network environment. i.e. internet connection and wireless connection.

iii. To implement the encryption algorithm for securing data in the database. In this project EKO-TECH07 is provide the security option for securing the data with the encryption technique.