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JUDUL: GIS BASED CRIME ANALYSIS SYSTEM

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GIS BASED CRIME ANALYSIS SYSTEM

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2007

DECLARATION

I hereby declare that this project report entitled

GIS BASED CRIME ANALYSIS SYTEM

Is written by my own effort and that no part has been plagiarized

without citations.

STUDENT : _____ Date: 13/11/2007

(KAMIL HASSAN BIN AHMAD SUKKRI)

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DEDICATION

To all my beloved family and friends
Whose boundless love and support replenishes and enriches my soul to complete this thesis.
Thanks for being my inspiration and encouragement

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Thanks to my friends for always supporting and sharing knowledge with me. Their opinion and positive critics have built confidents in me.

Thank you very much to all for improving the quality of the report. As well as people who will use the project that will be developed, I would sincerely appreciate your comments, criticisms, corrections and suggestions for improving the project.

ABSTRACT

FTMK Industrial Training System (FITPS) is base on latest technology where management becomes easier, quicker and more efficient. FITPS is a complete web based system for administrator, student, and industry to help FTMK in better management in placement industry training for FTMK student. By the way the flexible features can support multiple users enables them to apply industry training through on this system.

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ABSTRACT

GIS Based Crime Analysis System is developed for law enforcement in order to solve the problem while using the current system. The current system is truly unsatisfied which made the law enforcement suffer to analyze the crime data and problem in filing the system. The system not only makes the work faster but also it can store the complain and investigation information and produce statistic in various form. While developing the system, the SSADM approach were used where Waterfall model as the methodology. The system is programmed using Coldfusion and combined with Adobe Flash running on Apache Web server and Windows. At the end of development, hope that the system can help the law enforcement to combat the crime and reduce the crime rate at the future.

ABSTRAK

Sistem Analisa Jenayah dengan GIS (GIS Based Crime Analysis System) adalah dibangunkan untuk penguatkuasa undang-undang untuk menyelesaikan masalah yang dihadapi ketika menggunakan sistem yang sedia ada. Sistem yang sedia ada adalah kurang memuaskan dimana ia menyukarkan kerja penganalisaan dan penfailan. Sistem ini bukan sahaja mempercepatkan kerja, ia boleh diguna pakai untuk menyimpan rekod aduan dan maklumat siasatan, ia juga boleh meghasilkan laporan statistic berbentuk jadual dan maklumat pemetaan jenayah. Ketika pembangunan sistem ini, ia menggunakan kaedah Analisa Sistem Berstruktur dan Rekabentuk (SSADM) dimana ia menggunakan Waterfall model sebagai metodologi sistem. Sistem ini dikarang menggunakan Coldfusion dan digabungkan dengan Adobe Flash diatas pelayan Apache dan Windows. Dengan terbinanya sistem ini kelak, diharap ia dapat membantu penguatkuasa undang-undang agar dapat memerangi dan mengurangkan kadar jenayah di masa hadapan.

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DBMS	- Database Management System
DFD	- Data Flow Diagram
EMIS	- Education Management and Information System
ERD	- Entity Relationship Diagram
FK	- Foreign Key
GUI	- Graphical User Interface
IE	- Internet Explorer
LAN	- Local Area Network
OOADM	- Object Oriented Analysis and Design Method
PK	- Primary Key
PSARSS	- Primary School Achievement Retrieval Support System
SDLC	- Software Development Life Cycle
SSADM	- Structured Systems Analysis and Design Method
UTeM	- Universiti Teknikal Malaysia Melaka
RJH	- Ringkasan Jenayah Harian

CHAPTER I

INTRODUCTION

1.1 Project Background

Crime analysis is a method that used by law enforcement to reduce, prevent, and to solve crime, disorder, and quality of life issues. Our law enforcement in Malaysia, Royal Malaysian Police (PDRM), has used this method in order to protect the civilization.

The system has several functions which are crime complain, case investigation and statistics. By the request of the customer, police department; the system can show the statistic in geographical map form which requires GIS based technology. By integrating GIS into, the user could see the analysis report in geographical form, by example if the crime places are ticked in map, then user could determine which area has highest crime rate.

The project is developed especially for Police Department. For starting, the system will be used at IPD Melaka Tengah Bukit Beruang. The current system can key in records and print them but there is no analysis features. As proposed by IPD, the new system would integrate report module, investigation, analysis and map.

1.2 Problem Statement

We have identified some problems associated with the existing system for crime analysis in Malaysia. This is caused mainly by lack of a proper requirement analysis and incomplete.

Furthermore, IPD use traditional statistical information in crime analysis and to reveal crime patterns. Even they also still use filling system to kept data such as police report and *Ringkasan Jenayah Harian* (RJH), but they are not able to extract the data into statistic form. If they want to make a report or analysis, the police officer needs to open every single file in the cabinet to find the file. They also facing problem to maintain the database because they don't have a centralized database. All method that they used above is time consuming roughly. Thus, the achievements of combating crime are slow and this is not good.

The current system they have cannot generate report and they need to do it manually. The way they use now would be primitive as they must count manually on crime cases to make statistic.

In order to combat crime more effective, we proposed to use crime mapping. Crime mapping can help in defining which the 'hotspot' of crime is. Apparently, they have to use paper map and mark the location of crime using thumbnail, thus by looking at density of the thumbnail, they may target the area are hotspot.

Objective

- *To develop GIS Based Crime Analysis System*
  GIS Based Crime Analysis will be developed through this PSM course.

- *To manage police complain and investigation information.*
  All basic transaction such as add, update and search can be done by user within the system.

- *To produce statistical analysis*
  System can produce various type of statistic depend of user's requirement.

- *To integrate the analysis with geographical display.*
  The system will automatically generate map with crime statistic.

- *To make data processing better and work faster.*
  The system will be better and faster in data processing and accessing. The fact that it is an online system will make it accessible anywhere if there is an internet connection. This will make police work become easier and faster to solve crime. By making crime analysis, the chances of crime prevent is high.

1.3 Scope

Scopes of GIS Based Crime Analysis System include the target user, modules of the system, specific platform and resources.

1.3.1 Target User

The target user will be police officer in police department. They are divided to three types of user:

a. *Complain Receiver.*
   This user can input complain information that received from crime informer.

b. *Investigator.*
   This user has higher level than Complain Receiver user. Not only can access complain information, this user can manage investigation information.

c. *Administrator.*
   User that highest level in system. This user can access all area in system and manage user information.

1.3.2 Modules

a. *Complain*
   User can insert and update information of complain of crime here.

b. *Investigation*
   Investigator may key in information of cases here.

c. *Statistic*
   Users can generate statistic base on user's define.

d. *Map Statistic*
   Location of crime can be marked on map.

1.3.3 Where to Implement the System

GIS Based Crime Analysis System is developed to be used at Ibu Pejabat Polis Daerah Melaka Tengah (IPD Melaka Tengah) which are required by them to do analysis.

1.3.4 Specific Platform

The operating systems that use for this project are Microsoft Windows operating system. It can be Windows XP Professional, Windows Server 2003 or Windows 2000. This platform required Coldfusion MX 7 to be installed.

1.4 Project Significant

This project can give many benefits to police department and society. The system can be used as tool to analyze and make decision of the spatial pattern and processes of crime. If they able to find the crime pattern including hot spot area in fast way, it would assist their patrol and increase their prevention activities.

1.5 Expected Output

As the system complete, user may able to record the report into database, print them and they can input further detail about investigation information. After the information of crime has recorded, the analysis of the system can be produced whether in statistical data or in geographical data.

1.6 Conclusion

Advances in computer technology and analytical techniques have given crime analyst increasingly powerful toolboxes which to find the spatial pattern and processes crime. By using the system, it can help to save time cost, increase crime management capability and to empower the law enforcement organization. The next chapter will discuss about literature review and methodology. The literature review is very important in order to know others system features and somehow make comparison between the existing system and the performed system. In addition, the chapter is also discusses methodology that will be used by the project.