ATENEO DE DAVAO UNIVERSITY
Computer Studies Division

Senior Project

Traffic and Route Mapping Information System for Davao City

Group Name:	SHARKTAIL
Proponents:	Gepulla, Oscar Allen Bugaoan, Francis Jerson
Course:	Bachelor of Science in Information Technology
School Year:	SY 2006 -2007

Traffic and Route Mapping Information System for Davao City

An Independent Research Presented to
The Faculty of the Computer Studies Division
Ateneo De Davao University

In Partial Fulfillment
Of the Requirements for the Degree
Bachelor of Science in Information Technology

BY

Gepulla, Oscar Allen
Bugaoan, Francis Jerson

SCHOOL OF ARTS AND SCIENCES
ATENEO DE DAVAO UNIVERSITY

MARCH 2007

The independent research entitled:

Traffic and Route Mapping Information System for Davao City submitted by **Oscar Allen Gepulla and Francis Jerson Bugaoan** examined and is recommended for Oral Defense

Antonio Bulao II
Adviser
Computer Studies Division

Edwin V. Marañon
Thesis Coordinator/Division Head
Computer Studies Division

TABLE OF CONTENTS

Details of the Proposal

Traffic and Route Mapping Information System for Davao City

by

Oscar Allen Gepulla
Francis Jerson B. Bugaoan

Abstract:

The Graphical Information System (GIS) is born due to the increase and widespread availability of advanced technologies for usage modern cartography development. The study would like to address the certain issues and enhancing it to adopt the need of the region regarding the usage of the technology in a component of Traffic and Route Mapping Information in Davao City. The methodology presents GIS concepts and techniques, including GIS technology implementation, zoning, and linear referencing systems. The study wants to achieve a highly competitive information system, which illustrates the capabilities of GIS and related technologies in urban planning and development. The study frames certain components of GIS, delivers comprising cheap and reliable, show how it affects, and analyze on how to improve the research in Traffic and Route Mapping Information for the Davao City.

Keywords:

GIS, vector data model, Traffic and Route Mapping, geocoding and zoning

Chapter 1

INTRODUCTION

1.1 Background of the Study

The usage of Geographic Information Technology (GIS) into various agencies and institutions has led to an increased realization of the importance of a spatial dimension and towards a multidisciplinary approach to the technologies and information adopted. GIS is increasingly becoming important in modern society. GIS techniques are very useful tools for regional planning in determining future growth of a metropolitan area like Davao City. GIS has the ability to aggregate existing data and can overlay one type of data over another. The most powerful contribution GIS offers is to display data for both presentation and analysis.

GIS can predict future scenarios depending on the data that has been acquired the by the information system. Some are GIS are proprietary and not user friendly. With the help of existing technologies like the .NET framework, we can comply with some technology gap of providing good and efficient GIS. With the assistant of open source program, developers can combine information, perform analysis, and display results in one database.

1. 2 Technology Application Context

The present study seeks to answer the following general problem of how to establish a good and efficient way of creating traffic and routing information system?

Specifically, it seeks to answer the following questions:

- How to incorporate a Geographic Information System in Traffic and Route Information in Poblacion District, Davao City?
- Can the Geographic Information System be use to predict the Traffic Situation in Poblacion District, Davao City on a given time?

1. 3 Objective of the Study

The general objective of this study is to develop a cheap and reliable system of Traffic and Route Mapping Information for the Davao City.

The specific objectives are:

- To be able to provide forecasted information regarding of the Traffic Situations in Poblacion District, Davao City on a given time;
- To be able to predict the Traffic Situation in Poblacion District, Davao City on a given time;
- To be able to include a route file system for Route Mapping Layer, this includes volume of vehicles passing the street; And,
- To be able to store the old files for archiving.

1.4 Scope and Limitation of the Study

The study will generally focus on creating traffic and routing information system of the Poblacion District, Davao City. The limits of this study are as follows:

- The Traffic and Route Information is concentrated on the Poblacion District (commonly know as Central Business District) of Davao City only;
- The mapping of Traffic Routes only;
- The mapping of the Traffic Situation only; And,
- The Forecasting of the Traffic Situation in a given time only.

1.5 Significance of the Study

This study is significant to Davao City Government in implementing traffic and routing information system. Through this study, the government will benefit in the use of cheap and reliable geographically based information software in providing better service to the Davao City Government. The study will help also end-user in easily getting information through accessing the Traffic and Route Mapping Information System for Davao City.

1.6 Definition of Key Terms

Geocoding - is the process of assigning geographic identifiers (e.g., codes or geographic coordinates expressed as latitude-longitude) to map features and other data records, such as street addresses. You can also geocode media, for example where a picture was taken, IP addresses, and anything that has a geographic component.

Geographic Information System (GIS) - is a system for creating, storing, analyzing and managing spatial data and associated attributes. In the strictest sense, it is a computer system capable of integrating, storing, editing, analyzing, sharing, and displaying geographically referenced information.

Vector Data Model - An abstraction of the real world where positional data is represented in the form of co-ordinates. In vector data, the basic units of spatial information are points, lines and polygons. Each of these units is composed simply as a series of one or more co-ordinate points, for example, a line is a collection of related points, and a polygon is a collection of related lines.

Raster Data Model - One method of storing, representing or displaying spatial data in digital form. It consists of using cell data (not necessarily square) arranged in a regular grid pattern in which each unit (pixel or cell) within the grid is assigned an identifying value based on its characteristics

Geocoding - process by which imagery is corrected for all source-dependent errors and geometrically transformed to the desired map projection, being resample to a standard square pixel size Assigning geographic coordinates (e.g. latitude-longitude) to street addresses, as well as other points and features. With geographic coordinates, the features can then be mapped and entered into Geographic Information System.

.Net Framework - created by Microsoft is a software development platform focused on rapid application development, platform independence and network transparency. .NET includes many technologies that are designed to facilitate rapid development of Internet and intranet applications.

Zoning – is a method of regulating the use and development of property by dividing the jurisdiction into land use districts or zones represented on a map and specifying the uses and development standards.

Map - Abstract representation of the physical features of a portion of the Earth's surface graphically displayed on a planar surface. Maps display signs, symbols, and spatial relationships among the features. They typically emphasize, generalize, and omit certain features from the display to meet design objectives.