DESIGN OF GRAPHICAL USER INTERFACE (GUI) FOR 68000 MICROPROCESSOR PROGRAMMER

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Dedicated to my beloved family especially father & mother, teacher, lecturer and to all my friends.

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ABSTRACT

The aim of this project is to develop a software which can perform assemble, link and download hex code into 68000 Microprocessor Programmer. In order to meet the objectives, a user friendly Graphical User Interface (GUI) has been designed using Visual Basic. The designed software is user friendly software because it is able to replace the traditional bulky programming method which uses Microsoft Disc Operating System (MS-DOS). The traditional programming needs more than 30 commands lines but this new software only based on three main command buttons. The assemble function and link function can be done by just clicking a single button respectively. Besides, the HyperTerminal programming can be replaced by a button with adding reset pressing and text file sending. In order to improve the functionality of this software, a text editor was designed for writing, opening, and editing purposes. 'New' command button is used to clear the text box, while 'Save' command button is used to save the assembly source codes. The properties setting of serial communication also can be done on the properties setting window. Beside assemble source file, listing file, object file and hex file also can be displayed on the GUI. Microsoft Visual Basic and Dynamic Link Library (DLL) which are very important in methodology are the technologies that had been used to achieve the objectives of this project successfully.

ABSTRAK

Tujuan projek ini adalah untuk membina sebuah perisian antara muka (GUI) yang mempunyai fungsi untuk menghimpun, menyambung dan memindah heksa kod kepada 68000 Mikropemprosses di Makmal Micropemprosses FKEKK. Demi mencapai objektif projek ini, satu antara muka (GUI) yang senang diguna telah dibangunkan dengan mengunakan Visual Basic. GUI ini dikatakan senang diguna kerana perisian ini mampu mengantikan atur cara tradisi yang susah diguna iaitu atur cara dengan mengunakan Microsoft Disc Operating System (MS-DOS). MS-DOS memerlukan lebih daripada 30 atur cara tetapi GUI ini hanya berdasarkan tiga objek butang. Fungsi untuk menghimpun dan menyambung dapat dilakukan hanya dengan menekan satu objek butang masing-masing. Selain itu, atur cara untuk HyperTerminal dapat diganti dengan satu objek butang serta menekan reset termasuk memindah heksa fail. Demi meningkatkan fungsi-fungsi GUI ini, 'Text Editor' direka untuk tujuan menulis, membuka dan mengubahsuai atur cara penghimpun. 'New' objek butang direka untuk memadam teks, manakala 'Save' direka untuk menyimpan atur cara penghimpun. 'Properties Settings' untuk RS-232 dapat digubah di tertingkap 'Properties Settings'. Jenis fail yang lain seperti .lst, .obj dan .S28 juga dapat dipaparkan oleh GUI. Microsoft Visual Basic dan Dynamic Link Library (DLL) merupakan teknologi yang paling penting dalam metodologi, telah digunakan untuk mencapai objektif projek ini dengan jayanya.

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LIST OF ABBREVIATION

ADO	-	ActiveX Data Objects
API	-	Application Programming Interfaces
ASCII	-	American Standard for Information Interchange
CLI	-	Command Line Interface
COM	-	Component Object Model
DAO	-	Data Access Object
DLL		Dynamic-Link Library
DUART	-	Dual Universal Asynchronous Receiver/Transmitter
EXE	-	Executable
FKEKK	-	Faculty of Electronic and Computer Engineering
GUI	-	Graphical User Interface
IDE	-	Integrated Development Environment
I/O		Input/Output

ISAM		Indexed Sequential Access Method
LED	-	Light Emitting Diode
MSCOMM	-	Microsoft Communication
MS-DOS	-	Microsoft Disc Operating System
OLE	-	Object Linking and Embedding
PI/T		Parallel Interface/Timer
RAM	-	Random Access Memory
RDO	-	Remote Data Object
ROM	-	Read Only Memory
RS-232	-	Register Standard 232
UTeM	-	Universiti Teknikal Malaysia Melaka

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CHAPTER I

INTRODUCTION

Human can interact with a computer and computer-controlled devices via Graphical User Interface (GUI). A Graphical User Interface (GUI) is a type of user interface which employs graphical icons, visual indicators or special graphical elements, along with text, labels or text navigation to represent the information and actions available to a user. This project is to design a Graphical User Interface (GUI) to improve the quality of 68000 Microprocessor Programmer by replacing the Microsoft Disc Operating System (MS-DOS). As a result, user can save a lot of time if they change from MS-DOS interface to Graphical User Interface (GUI). This project cannot base on simple Visual Basic programming only because other concept and programming techniques are also needed. The other techniques include components technology, Active-X, Application Programming Interface (API) and dynamic-link library (DLL).

1.1 Project's Introduction

Existing 68000 Microprocessor's Programmer use Microsoft Disc Operating System (MS-DOS) to assemble and link for generating hex code. Also, HyperTerminal is used to download the hex code to the target board. Both methods waste a lot of time because involving many steps. It is because MS-DOS and HyperTerminal are a Command Line Interface (CLI) [1]; that require commands to be typed from the keyboard. The command lines are numerous and typing the command lines needs long time. However, the complicated operation and numerous command lines can be completed just using few command buttons if Graphical User Interface (GUI) method is used.

1.2 Objectives

The objectives of this bachelor degree's projects are:

a) To develop a function on Graphical User Interface (GUI) to perform assembles for 68000 Microprocessor's assembly source code.

b) To develop a function on Graphical User Interface (GUI) to perform link for 68000 Microprocessor's object file.

c) To develop a function on Graphical User Interface (GUI) to perform hex code download to the 68000 Microprocessor Programmer.