ABSTRACT

Programmable Logic Controller (PLC) is an electronic circuit that can do various control functions on the complex levels and used as a substitution component mechanical relays used in control systems. Several years ago, a variety of different programming languages had been used to program the PLC. For example, programming language such as ladder diagrams, each type of PLC has different rules and system of programming. Whereas modern industry usually do not use only one type of PLC, but both different types of PLC, this would be inefficient, both in terms of time and material.

IEC 61131-3 is the third part of the IEC 61 131 which discussed the PLC programming standards. In the programming language, it accommodates five PLC programming language, the fifth can be combined or used simultaneously or separately depending on the process to be controlled. In this final project will be designed a programming software which will accommodate PLC programming using one of the IEC 61131-3 programming languages, ladder diagrams, with the help of Visual Basic.Net software and Micro PLC STM32 as a controller.

The result of this final project is a form of software that serves as a graphical interface between user and PLC ladder diagram in terms of design and appearance of the input output PLC, compiling the ladder diagram into ladder opcodes and Instruction List, and PLC control system working in accordance with IEC 61131-3 programming standard.

Key words : ladder diagram, ladder opcode, Instruction Lis*t*, Micro PLC STM32,
IEC 61131-3, Visual Basic. Net