HIGHER TECHNICAL INSTITUTE

ELECTRICAL ENGINEERING DEPARTMENT

DIPLOMA PROJECT

SEQUENCE CONTROL SCHEME FOR TRAFFIC LIGHTS USING PROGRAMMABLE LOGIC CONTROLLERS

by

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PROJECT REPORT

Project Submitted by
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SEQUENCE CONTROL SCHEME FOR TRAFFIC LIGHTS USING PROGRAMMABLE LOGIC CONTROLLERS

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CHAPTER 4: Basic functions of PLC

CHAPTER 5: Traffic lights area & Traffic light poles

CHAPTER 6: Direction sequence & Timing

CHAPTER 7: Programming the PLC

ACKNOWLEDGMENTS

SUMMARY

TITLE: "Sequence Control Scheme for Traffic Lights using programmable Logic Controllers "

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The report investigates the programming capabilities of a "ladder language". It also examines the characteristics and capabilities of Programmable Controllers. Then an application program using the Programmable Controller for a sequence control process is developed. Finally , the program analysis, costing and comparison with conventional methods are given.

The application program is based on the Allen-Bradley SLC 500 programmable Controller's instruction techniques and the PLC of the H.T.I.

INTRODUCTION

The main objective of this project is to develop an application program using the programmable controller in order to control the Gr. Dhigeni - Them. Dervi and Nikis - Matsi traffic lights after an overall description of the PLCs as far as their characteristics, capabilities and programming are concerned.

For this reason a "ladder diagram" was constructed, using the "ladder language".

The whole ~~hole~~ project is divided into the acknowledgments, the summary, the introduction, six chapters, the conclusions, the set of appendices and the references.

Chapter 1 gives a brief definition and makes a comparison of PLC with other control systems.

In chapter 2 the major sections of the PLC system are described in details. In chapter 3 the ladder diagram language and all the programming symbols / instructions of the PLC made by Allen - Bradley model SLC 500 are discussed.

Chapter 4 discusses the basic PLC functions. More emphasis is given on the functions used in the application case study.

Chapters 5,6 and 7 refer to the actual case study problem of traffic lights and to the explanation of the ladder PLC program rung by rung.

The main purpose of this report is to provide a basic, clear and outlined idea on PLCs and their applications. Moreover it intends to get the reader familiar with such applications by dealing with a certain design of control scheme with a detailed explanation of the program and an overall costing of the system.

The unique feature of this report is that it does not depend on the reader's background knowledge on PLCs, emphasis is given to the simplicity of the language used.