

HIGHER TECHNICAL INSTITUTE
ELECTRICAL ENGINEERING DEPARTMENT

DIPLOMA PROJECT

DEVELOPMENT OF A COMPUTER
CONTROLLED LIGHTING SYSTEM

E/1100

THRASYVOULOU THRASSOS

JUNE 1997

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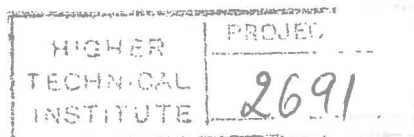
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CONTROLLED LIGHTING SYSTEM**

By

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Project report submitted by

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SUMMARY

The purpose of this project is to study the personal computer and the methods used for connecting an external electronic device to it. The final objective of the project, is to design a “computer controlled lighting system”.

The “computer controlled lighting system” must be capable of controlling sixteen lighting points having in mind that the user may also wish to control the lighting points manually. The automated control of the system should be done with a graphical user interface, which will simultaneously display the status of all lighting points, i.e. if they are ON or OFF.

In order to achieve the purpose of this project, firstly, different computer interfacing techniques are studied in order to select the best method for use with this project. Secondly, the schematic designs for the interface card and the automatic switches are produced and tested to see if they operate properly, using special simulating software. Next comes the design of the printed circuit boards and the construction of the hardware. At the same time, the necessary software for use with the hardware is prepared. Finally, some tests had to be done in order to test the proper operation of the circuits and software.

The “computer controlled lighting system” idea, has been conceived knowing that computers will soon enter every house, automating almost everything, and making life even more comfortable than it is today. Furthermore, the possibility of remote control of the house appliances is becoming these days more feasible.

INTRODUCTION

In recent years computers have evolved in a very fast way. Today they are a valuable part of the office and place of work and indispensable in everyday life, whether a man goes to the bank or to buy food from a supermarket. Everything is related to them making things faster and more convenient for the man of today.

But computers are still not playing a vital role in the house operation. Many people may have personal computers in their houses to deal with the taxes or play games, but no house is controlled by a computer. A computer can be the brain of the house, doing things that will help people live a more comfortable life. A computer can turn ON or OFF the lights, turn ON the oven and cook the food, or turn ON the heating system when its sensors notify it that the house is too cold. A computer can be programmed to heat the water at a specific time of the day so that people coming back from their jobs have hot water to take their bath. Or even, a computer could control the television set, thus enabling parents to select what programs their children watch.

These are just a few examples of what could be done in a computer controlled house. All these functions could be controlled from a small touch screen located in every room or even by voice commands. And, of course, the operation of the system would be so easy that anybody could control it, not just trained people or people with computing experience.

The above give a brief description of how the future house will be. Based on these, a simple system for controlling the house lights will be constructed. This system will not necessarily be ready to be installed in a new house but will simply demonstrate one of the several ways it can be achieved.