



UNIVERSITY TECHNOLOGY OF MARA

FINAL YEAR PROJECT

DIPLOMA IN MECHANICAL ENGINEERING

SESSION MEI 99 – APRIL 2000

**DESIGN OF A CHANGE-OVER CONTROLLER
FOR ELECTRICAL BACK-UP POWER
SUPPLY**

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APPRECIATION

First of all we would like to give our thanks to the one that had created us, Allah S.W.T. Because of her blessings we finally completed our final year project eventhough we faced a few problems.

Also we do not forget to thank our mentor of this project, Ir. H.S Loo. Advises from him help us to make this project completely properly. Our thanks also go to our parents, because of their support and help.

Last but not least we also would like to thank all person that had help us such as our friends, lecturers, UiTM staff, TELEKOM staff, KLCC Maintenance Dept. and others. Without them maybe we could not have finished this project easily. Thanks once again.

INTRODUCTION

One of the problems in electrical or electronic equipments operation is when the main supply is interrupted, certain critical equipment may be affected and requires a form of back up for reliable operation. General methods adopted to provide continuous supply includes the use of standby diesel generator or through the use of Uninterruptable Power Supply (UPS) System.

UPS system are generally expensive especially when long period of backups are required leading to high category cost. Standby generators on the other hands are comparatively more cost effective. The importance of continuous reliable supply is critical to the operation of electrical equipment. This project is concerned with the development of the controller that could enable an existing single phase generator set to be controlled so as to provide automated starting,

OBJECTIVES

The objective of this project is to provide an auto controller system that will assist in connecting to the power supply backup system when the main supply fail to do so. The controller so designed will help to activate the single phase generator to provide backup supply automatically during power failure. This project is operated by using sensor, timer, relay and contactor.

Basically, this system is operated based on three purposes

1. This system will help to ensure that the stand by electrical supply is connected properly without any interruption.
2. In case of TNB power supply failure, it will be detected by this system. As a result, the single – phase generator will automatically be connected by the system to the affected electrical equipments until the TNB supply is back to normal.
3. While the changing operation between TNB power supply and generator set occurs, this system will ensure that the switching is safe such that there is no clash between them.