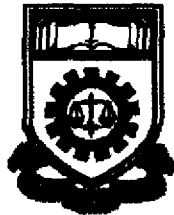


**THYRISTOR SOFT-STARTER FOR MAWDSLEY'S
DEMONSTRATION SET**

Thesis is presented in partial fulfillment for the award of the
Bachelor of Electrical Engineering (Honours)
UNIVERSITI TEKNOLOGI MARA



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ABSTRACT

This thesis presents an improvement of the Mawdsley's demonstration set starter from mechanical starter to soft starter using power electronic components. DC chopper using SCR is employed as converter. Cost and the reliability are considered. The implementation of the soft-starter involved design, simulation, construction and performance validation.

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CHAPTER 1

INTRODUCTION

The purpose of this project is to design a DC motor soft-starter. The final design is to be implemented on the Mawdsley's demonstration set. The students' demonstration set was developed by the Mawdsley's Limited (see appendix for circuit layout). This set is suitable for use with large classes at elementary level. The philosophy underlying the Mawdsley's Generalised machine is to be all the experimental facilities, which enable a student to acquire a sound understanding of the unity underlying the principles of the basic machines types, are provided.

Currently the machines have been abandoned in the power laboratory due to the problems in the starting device. Practically the machine reliability in handling several experiments such as salient and non-salient forms to the student are still valid. It is a waste such machines had been abandoned. Designing the starter using power electronic is the answer to the problems. Since the electronic components are very economical and easy to install for the maintenance purposes, the reliability of the DC converter chopper method is an added advantage.

As for the Mawdsley's machine, method of starting is to insert a rheostat in series with the load to limit and control the starting current. The problem on the motor is the starter for the DC machine where the starter using resistor not in proper condition. Again, for high power ratings, rheostats are large, expensive, need maintenance, and they waste energy. The alternative method is to use a soft-starter, as it is more economical and efficient since this method didn't need to use resistor and need less maintenance.