

FINAL YEAR PROJECT REPORT
DIPLOMA IN ELECTRICAL ENGINEERING (INSTRUMENTATION)
SCHOOL OF ENGINEERING
MARA INSTITUTE OF TECHNOLOGY

TITLE :
AUTOMATIC GATE SYSTEM

BY:
MOHAMAD ROOM BIN MARZUKI
(88314218)
AND
AHMAD ZAHIRI BIN ISMAIL
(87719675)

AUGUST 1991

ABSTRACT

A model of an automatic gate system is designed in this project. The system is an electromechanical system which is the combination of a mechanical and electrical system. The electrical system consists of the controller and the motor, and the mechanical system includes how the gearing and the rail control the movement of the gate. Three buttons are used to open, stop and close the gate. This system also has a limit switch to stop the gate at the specified distance.

ACKNOWLEDGEMENT

We offer our thanks to our supervisor Mr Ali Azizan for his guidance and encouragement in making this project a success.

We also like to convey our thanks to all the staff of the Department of Electrical Engineering (Instrumentation) and colleagues who were directly or indirectly involved in the completion of this project.

TABLE OF CONTENTS

	Page
Abstract	ii
Acknowledgements	iii
Table of contents	iv
 CHAPTERS	
1. INTRODUCTION	
1.1 General	2
1.2 Construction	3
2. ELECTRIC MOTOR AND RELAY	
2.1 DC Motor	6
2.2 Electronic Relay	34
3. DESIGN PROCEDURE	
3.1 Diagram and Layouts	41
3.2 Push Button Station	44
3.3 Forward and Reverse of Motor	46
4. WORKING OPERATION	
4.0 Working Operation	52
5. DISCUSSION AND CONCLUSION	
5.0 Discussion and Conclusion	55
REFERENCES	57
APPENDIX I	
APPENDIX II	

1.0 INTRODUCTION

1.1 GENERAL

With the progress of science and technology many ways are made for simplification and convenience of modern living; electric toaster, washing machine, television and radio are such examples. One of the advancement in modern living is the automatic gate system.

Automatic gate system is a system where the gate can be opened or closed without having to open or close it manually. This can be achieved by having an electrical motor to operate the gate. Depending on the design, the gate can be operated by a push button at the gate or by a remote control from a distance. This type of gates are widely used in factories, schools and can also be found at home.

In general, an electrical motor is used to open or close the gate. The motor can be a DC motor or an AC motor. The motors should have sufficient torque to move the gate. The motor is controlled by a controller where the simplest form of the controller uses relays. A more sophisticated form of the controller uses microprocessor. The controller can be activated by the switches such as push button or from a distance using remote control.