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UNIVERSITI TEKNOLOGI MARA**



KAMPUS PULAU PINANG

**LAPORAN AKHIR PROJEK DIPLOMA**

**MAC 2002**

**GATE CONTROLLER WITH AUTOMATIC  
LOCK ENTRANCE**

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## ABSTRACT

Final project is part of the course structure that needs to be taken by students that is in the final years. This project has been divided into two that is called “Project 1” (KEU 280) and “Project 2” (KEU 380). The main purpose that students have to take this course is to give them opportunity to test their skills and to gather all the knowledge that they have been studying for these few years. From this kind of course, we can learn the practical way of doing the project and figure out the best way to improve them for the purpose of using them in the future.

Nowadays, the rapid changes in quality of life require new technologies to fix with them. It is important to design new system that can make everything as simpler as possible to operate. That is why we choose to make the project base on DC Motor. This equipment has been invented and is now has been used in everyday life and become the important thing to people. We realized that this course is to train the students to become familiar with making a certain project. The objectives of this course is mainly to:

1. Train the students to use their knowledge from what they have learned from whole these years.
2. Give an opportunity to students to test their skill in making something in practical.
3. Train the students to become more creative and innovative in producing a certain product that is fix with the application
4. Make sure the students learned how to manage their time and also manage to overcome obstacles with their project
5. Preparation for students before working or taking any higher education.

## ACKNOWLEDGEMENT

For the opportunity that has been given here, we would like to thank those who are involved and help us from the beginning until the completing moment of our project. Thank God for giving us mercy and bless while doing project until the end of it.

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We also would like to thank our parents and friends for giving us non-stop moral support and material support to complete this project. Thanks to our senior that also given us idea and advise on how to improve our project. Lastly, thanks to all that related in this project, might Allah bless you all.

**Thank You.**

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(Mohamad Noorazlan B. Abd. Kadir)

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(Mohd Faizal Bin Abu Hanifah)

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## INTRODUCTION

There are two types of direct current machine that is dc generator and dc motor. Direct current machines are capable to convert mechanical energy to electrical energy (dc generator) or convert electrical energy to mechanical energy (dc motor). For our project, we are focusing on dc motor and named our project as “**Gate Controller With Automatic Lock Entrance**”. DC Motor is popular because dc power systems are still common in cars, trucks and aircraft. DC Motor could also being used to control the speed.

“**Gate Controller With Automatic Lock Entrance**” is using the automatic system. This means the gate can be moved open or close automatically. The main purpose we named our project “**Gate Controller With Automatic Lock Entrance**” is because we use the DC Motor as the actuator and this main part of our project can be function automatically. However, this function will only react when the security code entered is correct to operate the whole system.

The purpose we design this project is to produce an easy way of controlling the gate that is simple and easy to use. According to our overall circuit, we had divided them into three stages that are the “**Digital Code Lock**”, “**Touch Switch**” and “**DC Motor**”. Every single one of these stages had it’s own function. For an example, the first stage that is the Digital Code Lock is used to make sure that user had entered the right combination by following the sequence. It means that the first stage must be activated before the other two stages. To produce the digital code lock, we used the IC 4081 as a **quadruple two**