FINAL YEAR PROJECT REPORT

DIPLOMA IN MECHANICAL ENGINEERING
(MANUFACTURING)
Mara University Of Technology
Shah Alam
Sealangor Darul Ehsan

ELECTROMECAHNICAL DRIVE

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ABSTRACT

This project, DC Motor speed controller with simulation is fully made in modelling by **SIMULINK**, a part of **MATLAB** software in order to finish this project.

Actually, these projects are in the form of software, use as a medium to study about the performance of the DC motor (who presented in model or in block diagram) without running the motor or in the other words not practically running the real build motor.

The using **PID (proportional, Integral and Derivative)** controller who inserted also in model is to control the output speed by tune the parameter of **PID**. Saturation of armature voltage also inserted in this modelling to know the limit or range of armature voltage also inserted in this modelling to know the limit or range of parameter **PID** can work. It is because the value of **PID** must be suitable for arrange of **PID** value, it must the performance of the motor also changing. While the single loop system is the method of controller.

This project also user-friendly, it allow users to know the effect of changing any value in the modelling who substitute the real motor, so indirectly users can learn more about transients study.

Hopefully this project can help student to understand more about controlling the speed of electrical motor.

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Lastly, we pray to our Almighty and Merciful God, **Allah** for the blessing and guidance give us the strength and peaceful mind to gives the rewards for hour hard work...

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CONTENT

1.0) INTRODUCTION OF THE DC MACHINE

In the early technology of the machine in the electrical-mechanical machine is DC motor. It makes senses when the system of the cars until now are still used the DC supply for power system in the car or as a power supply nowadays. The reason of applying the DC source is to control the speed regulation in the rotational of certain DC motor, which provides the desired speed control.

Before the revolution of power electronics occurs, such as rectifier and rectifier DC motor unexcelled in speed controller regulation as being said in the early definition. However there are still some of the application of the DC motor are prefers.

DC motor is usually being compared by their performance on the speed regulation. The speed regulation of the motor means that a motor's drops with the increasing of load, and a negative speed regulation means a motor's speed increase proportionally with the increasing load.

The magnitude of the speed regulations shows the approximately about the scope of the torque-speed characteristic curve could be. Thus, for real sure that the DC motor machine are driven from the DC supply voltage at the terminal. The supplied voltages of the DC motor are remains constant all the time of operation of the motor. Thus, for controlled the speed of the motor surely by controlled the voltage, which is being applied to motor by adjusting the voltage source.