

# E-LEARNING OF DC MOTOR

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## **SUPERVISOR'S DECLARATION**

“I hereby declared that I have read through this report and found that it has comply the partial fulfillment for awarding the degree of Bachelor of Electrical Engineering (Control Instrumentation & Automation)”

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Date : 22<sup>th</sup> April 2009

## STUDENT DECLARATION

“I hereby declared that this report is a result of my own work with the exception of accepts that have been cited clearly in the references.”

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*Specially dedicated to*

*My beloved parents,*

*Ismail Mat Mi*

*Wan Engah Wan Osman*

*My loving sisters.*

*Normi*

*Norma*

*Thank you for the endless support and encouragement*

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## **ABSTRACT**

DC motor is one of the machines that devised to produce mechanical power. This type of motor is commonly used for highly versatile mechanisms and suited for many industrial applications. This makes them very useful in machine tool operations because it can provide higher starting torque than the other motor types. Nowadays there are many students taking the tough course like engineering, but they face difficulties to study about motor clearly. Hereby there is necessity to develop an attractive learning on concept of motor by using appropriate software like Macromedia Flash. This software publishes the lesson with special effect and creative animation. In this project, the appropriate software is used to explain about the DC motor due to their interesting learning, clearly and effectively. Other than that, this project will expose to the software skills. With using this software, it made easier for users to understand more about motor. Moreover, the combine of the wide knowledge of DC motor and software will present as a good medium to learn.

## **ABSTRAK**

DC motor adalah salah satu mesin yang direka untuk menghasilkan kuasa mekanikal. Motor ini sesuai digunakan untuk diaplikasikan kepada industri. Ia sangat berguna untuk peralatan yang menggunakan mesin kerana ia membekalkan kuasa yang tinggi berbanding jenis motor yang lain. Pada masa sekarang, ramai pelajar yang mengambil kursus yang berkaitan dengan kejuruteraan tetapi berdepan dengan masalah untuk belajar dan memahami pelajaran berkaitan motor dengan lebih jelas. Oleh itu, adalah perlu untuk menghasilkan satu cara pembelajaran yang menarik berkaitan motor dengan menggunakan perisian yang sesuai seperti Macromedia Flash. Perisian ini menyediakan pembelajaran yang menarik menerusi kesan dan animasi yang kreatif. Dalam projek ini, perisian digunakan untuk menerangkan DC motor dengan menarik, jelas dan berkesan. Disamping itu, projek ini mendedahkan kepada kemahiran. Dengan menggunakan perisian ini ia akan memudahkan pengguna untuk mempelajari tentang motor. Dengan menggabungkan pengetahuan tentang DC motor dengan perisian, ia akan menghasilkan satu medium yang terbaik untuk pembelajaran.

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## CHAPTER 1

### INTRODUCTION

This chapter explains about the main purpose of E-Learning and how it can help students and lectures in order to make an attractive learning of DC motor. This chapter also include about the problem statement, objectives, scope of the project and methadology.

#### 1.1 Project Background

This project of E-Learning is based on the software and multimedia skills and knowledge about the DC motor. Macromedia Flash is choosing to provide and develop an interesting learning for users especially students due to their learning about motor. It is included with a notes about theory, principle, virtual lab and tutorial. The aim of this project is to combine the information of the DC motor with a software as a good medium for learning and teaching. It make a system of learning is user-friendly. Information is provided without need to spend more time to go to the library. Students can study anywhere they have access to a computer and internet connection. Thus, travel time and travel cost for off-campus students can be reduce. Successfully completing of this project builds self-

knowledge, self confidence and encourages students to take responsibility for their learning.

## **1.2 Problem Statement**

The major problem of a learning system today is boring and not effective. The explanation about DC motor which available today mostly just a note and does not show the actual motion of DC motor. Students face difficulties to learn about motor without some explanation with animation. Students also waste time and money to go to the library. Realizing these problems, an attractive learning has been developed to replace existing note. Cost is reduced and learning is even improved and disseminated better. Hence, students can study anywhere and anytime without lectures and instructors.

## **1.3 Objectives**

In each project, it must be starting with a clear objectives and propose of the project. Objectives is related after identify to the problem. The objectives of this project are:

- i. To develop an attractive learning which is „E-Learning of DC motor“
- ii. To combine information about DC motor with the multimedia as a good medium for learning and teaching purpose
- iii. To enhance proficiency in software skills like Macromedia Flash
- iv. To equip students with the interesting learning that is more easy to understand
- v. To research about DC motor as a knowledge

## 1.4 Scope

Scope of project mean the totality of work needed to complete a project. It is important to consider the limitations of the project. This project focuses on the research about DC motor and development of the attractive leaning using Macromedia Flash. After doing some research about DC motor, the information will be combining to the software.

## 1.5 Project Activity Flowchart

While doing this project, there are some works that must be done in order to complete this project. It begins from searching and collecting information process, finding software, problem solution, seminar preparation and report writing. So we have to build a flow chart to make this project be done easily and systematic. Below is the flow chart:

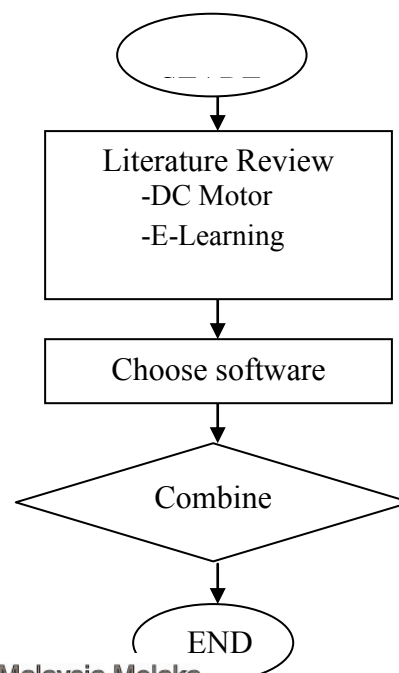




Figure 1.0: Activity

Flowchart

**1.6 Gantt Chart**

PROJECT ACTIVITIES	2008						2009				
	MONTH July	MONTH Aug	MONTH Sept	MONTH Oct	MONTH Nov	MONTH Dec	MONTH Jan	MONTH Feb	MONTH March	MONTH Apr	MONTH May
PSM I: Title Selection	■										
Literature Review and Research		■	■	■							
Study Case Task 1: DC Motor Task 2: E-Learning			■	■	■	■					
Mock Presentation PSM I			■								
Draft Report Submission				■							
PSM II: Combine knowledge to software					■	■	■	■	■		
Log Book Writing		■	■	■	■	■	■	■	■	■	
Presntation PSM II											■
Final Report Submission											■

**1.6 Project Outlines**

Chapter 1 explains about the project background, objectives, problem statement, scopes, project activity flowchart, gantt chart and project outlines

Chapter 2 explains about the history of E-Learning and DC motor. Besides, the definition and example of them are also included

Chapter 3 explains about the theory of DC motor. It also about the software that is used in this project which is Macromedia Flash

Chapter 4 explains about the the process of this project.  
It is include with a methadology and planning

Chapter 5 explains the preliminary result and progress  
of the project

Chapter 6 explains about the conclusion of the overall  
project. The final touch is the recommendatiion for the  
future works regard

## **CHAPTER 2**

## **LITERATURE REVIEW**

This chapter is about the review of current knowledge on a particular topic that is correlate with this project. It is include with a history and definition of E-Learning and software used. It is also includes with some explanation about the theory of DC motor which is principle and characteristics.

### **2.1 Introduction**

In a global community that is wide with a technology today, they are many way to recognize and improve the potential of learning and teaching. Combining e-digital content with an information will produce E-Learning that can provide a virtual education. Multimedia or software skill is a way in order to make a learning system today are more interesting and effective. It is about the computer method mean that software is involved to implement the learning. With the E-Learning, it can attract students to study without feel bored. Although there are some of the E-Learning today but it is not include with animation. There are just a note that create with a special layouts. Apart from that, it needs to be improved so that E-Learning will be trusted as a good medium for education and learning.

### **2.2 E-Learning**

### 2.2.1 History

CBT (computer based training) system which is E-Learning is found by George Orwell in 1984. An extraordinary Irish entrepreneur, Bill McCabe had come to pursue his dream. His vision was to train computer professional with computer based training. There was no incentive to pay for training. Lotus Notes in Cambridge, Massachusetts (pre-IBM) become the first CBT System customer. Most of CBT's software was written in Ireland and India of its day in terms of wages. Training without the cost of instructors and classrooms captivated the imagination of the cyclical computer industry. Other vendors signed up. After a while, CBT Systems offered computer-based training for every major vendor's software.

### 2.2.2 Definition

Electronic learning (or e-Learning or eLearning) is a type of education where the medium of instructor is computer technology [7]. It also defined as a learning activity that supported through the use of communications technology. It is about computer skills and friendly-users. Thus, E-Learning involves the use of of a computer and software to provide training, educational or learning material. People especially student can study and learn from it through an interesting layout that content with a notes, tutorials and animations. It is able to work on any time and from anywhere provided for users through an internet access. Lesson may be carried out like 'synchronously' (in same-time) or 'asynchronously' (in different period). Learning could be delivered with a multi-media characteristics such as text, graphic, animation,

simulation, audios and video. It should also provide facilities to 'discussion group' and enable guidance carried out on-line 'on line'.

### 2.2.3 Differences between Traditional Learning and E-Learning

In traditional learning which is inside a class, learning environment is centred on teacher. Teacher regarded as a well people to give knowledge to the student. Education module merely depend to the textbook and student's knowledge limited to the content in textbook only. Apart from that, if students do not understood and ashamed to ask, they will remain not understood. While teacher's attention less getting given like individual because large number of students in class. If class broken up, number of teachers must be added. Lesson is depends on teacher to make it fun or bored. A lesson also like formal.

In E-Learning, a main focus are student. It would force student to become more active and independent in learning because planning of education is committed by their own. Student make plans and seek information with their own initiative. Latest information can be searching and can be selected by students whether is reckoned as suitable or not. Student no need to shy to repeat same learning subject to be achieved their understanding levels of satisfaction before moving on to another subject. Apart from that, more time flexible and less pressure. It could be access as long as there were a facility and internet provided.

#### 2.2.4 Development of E-Learning in Malaysia

E-Learning in Malaysia today is still new relatively compare with a western countries and Singapore. In Malaysia it its directed to long distance learning and 'on line' which mostly offered in private university level and college which possess joint venture with an overseas university where fee imposed quite expensive and high. In Singapore, 'e learning' already grow in idea form developing 'on line repository' aid industry education in that country to form courses 'e learning' which enable editing works like immediate and on line.

#### 2.2.5 Advantages and Disadvantages

E-Learning has it own pro and contra. It can be particularly beneficial and liberating. For the advantage, this technology can help students learn more effectively and can improve their efficiency. For students that has low motivation, they will fall behind with this facility.

Advantages:

- Hands-on and simulated in a virtual classroom
- Saves on cost and time
- Effectives and efficient communication system
- Just in time access to get informations
- Provide interactive environment
- Increase the motivation to learn

Disadvantages:

- Learners with low motivation or bad study habits may fall behind
- Instructor or lectures may not always be available when students are studying or need help
- Managing computer files and online learning software can sometimes seem complex for students with beginner-level computer skills
- Hands-on or lab work is difficult to simulate in a virtual classroom

## 2.2.6 Study and Research

Nowadays, many people especially students study and learn from the internet. They more prefer to choose computer than go to the library to find notes. It is more effective and friendly-users. Below are a few example of E-Learning.

### **Study 1**

An Interactive Learning on AC Power Transformer

By: Gabriel Jatu,2006

This is the final year project that develops an interactive learning about AC power transformer. It

describes the function of transformer with an animation that using macromedia flash as a software development. It is include with a tutorial and notes about a transformer. There were also some experiment that is related to the transformer.

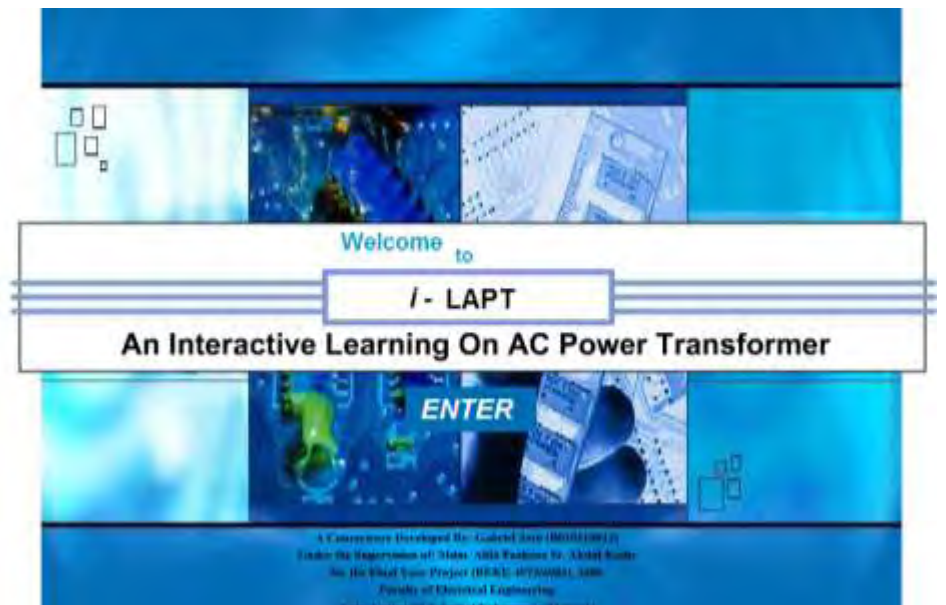


Figure 2.0 Example of

Study 1

## Study 2

Computer Aided Education on Three Phase Transformer

By: Zairusfaizery Jopeny,2006

This final project is about e-learning of the three phase transformer which is one of the subtopic in subject of Electromagnetic Theory. It is include with several topic