E-LEARNING INTEGRATED LIVING SKILLS ON ELECTRIC (WEB BASED)

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E-LEARNING INTEGRATED LIVING SKILLS ON ELECTRIC (WEB BASED)

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This report is submitted in partial fulfillment of the requirements for the
Bachelor of Computer Science (Media Interactive)

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2007

DECLARATION

I hereby declare that this project report entitled

E-LEARNING INTEGRATED LIVING SKILLS ON ELECTRIC (WEB BASED)

is written by me and is my own effort and that no part has been plagiarized
without citations.

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ABSTRACT

An effective e-learning system is successfully implemented in education by improving the way of teaching and learning in current education system. This project aims to develop an interactive web based learning modules and use as a platform to equip the student with the appropriate level of proficiency in electric topics and to learn it. This project also discusses an e-learning using a web based system to improve the process of student understanding and learning on electric topics in secondary school. This project developed for the purpose of providing educational knowledge with interesting and interactive learning environment. The architecture of the e-learning is divided into four important components consisting of: Notes, Tutorial, Activity and Drill Practice component. This e-learning gives a clear view of electric topics and it can overcome the problems of several students to understand the topic very well. The methodologies that is used to develop this project is Water Fall Model which consist of planning phase, analysis phase, design phase, implementation phase and testing phase. In conclusion, this e-learning has the potential to improve student understanding of the main concepts in electric topics and student can learned it interactively.

ABSTRAK

Sistem E-pembelajaran secara efektif telah berjaya dilaksanakan dalam pendidikan yang mana ia merupakan salah satu langkah bagaimana untuk meningkatkan sistem pengajaran dan pembelajaran semasa. Projek ini bertujuan untuk membangunkan satu sistem pembelajaran secara interaktif dan sistem ini akan digunakan sebagai salah satu platform untuk melengkapkan pelajar dengan kemahiran dan pengetahuan dalam bidang elektrik. Dalam projek ini juga akan membincangkan tentang kajian yang telah dijalankan untuk membangunkan satu sistem pembelajaran iaitu menggunakan sistem laman web dalam meningkatkan pemahaman pelajar di sekolah menengah dalam bidang elektrik. Sistem E-pembelajaran ini dibangunkan bertujuan untuk memberikan pengetahuan dalam suasana pembelajaran secara interaktif dan menarik. Arkitektur bagi sistem E-pembelajaran ini dibahagikan kepada empat bahagian iaitu: Nota, Tutorial, Aktiviti dan Latih Tubi. Melalui sistem ini ia akan memberikan maklumat yang lebih jelas tentang topik elektrik dan secara tidak langsung ianya dapat menyelesaikan beberapa masalah pelajar dalam meningkatkan pemahaman pelajar tentang topik ini dengan lebih mendalam lagi. Metodologi yang digunakan dalam membangunkan sistem E-pembelajaran ini ialah *Water Fall Model* dimana ia merangkumi 5 fasa iaitu perancangan, analisis, rekabentuk sistem, implementasi dan pengujian. Kesimpulannya melalui sistem E-pembelajaran ini ia mempunyai potensi yang besar dalam meningkatkan pemahaman pelajar tentang asas konsep elektrik dan pelajar dapat belajar secara interaktif.

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INTRODUCTION

1.1   Project Background

In education, the web is increasingly used both as a learning tool to support formal programmes and as a means of delivering online learning programmes. Much of the literature on web based learning shows that one of the main barriers to the effective use of teaching materials is the technology for example, poor access, slow downloading rather than the design of the learning materials themselves. Through programming and the use of "plug-ins" programs that can be downloaded from the internet, designers can produce interactive course materials containing online activities such as self assessments, animations and simulations. These can improve learning and are often more enjoyable and meaningful for learners.

In this situation, the emphasis is on how to present a topic to users in a way that increases their knowledge and skills. So the purpose of this project is to develop an e-learning Integrated Living Skills on Electric Form One using web based. The content will give clear view and focused on the electric topics that covered in Integrated Living

Skills subject. This e-learning e will use more graphical contents to attract attention of the student in learning the electric topics very well.

1.2   Problem Statement

Nowadays, in this technology driven world, a new concept of distance education has emerged. The concept of web-based learning and the use of the Internet in teaching and learning have received increasing attention over the recent years. The problem is that most of the existing Web based learning systems consists of a network of static hypertext pages. The use of multimedia can help to increase the attention of the students. The retention of students on a subject matter is better if the content is multimedia-based. Interactive content can help to reduce distractions.

One of the main advantages of delivering web-based educational materials is that the same content is delivered to a number of students and can be accessed with no restrictions of time and place. By introducing web-based learning, it can be viewed on-line using any popular browser. The development of web-based learning is easier to modify and update and more flexible compared to any standalone application which cannot be update and no feedback.

Due to this problem this project will use a web based environment with some interactivity which enables students to construct knowledge and engage deep learning on electric topics in easy way.

1.3   Objectives

There are several objectives in order to develop this Integrated Living Skills on Electric which are :

1. To develop an interactive e-learning covering the basic electric in Integrated Living Skills subject.
2. To convey as much useful information about the electrical topics using a web based approach.
3. To design an application which will be used as a medium for student to learn the electric topics at any time.

1.4   Scopes

This project is fully web based system and it is targeted for the secondary school students for Form One to attract them to get the information and learning process for them besides using textbook as a medium to transfer the information. It focused on the Electrical topics that covered in Integrated Living Skills subject. This topic will divided into six topics which are *Source and the Importance of Electricity, Electrical Tools, Electrical Circuits, Multi Meter Application, Power Supply Systems* and *Electricity Power.*

The first topic describes the importance of electricity in daily life. Second topic explains on the electricity tools and its functions. In third topic elaboration of the basic electric circuit such as define the differences between a series and parallel circuits, calculate voltage, current, resistance and power at each point in a circuit and interpret basic schematic diagram. For *Multi Meter Application* topic consists on how to read the scale of ohm meter and understand its function while *Power Supply System* topic describes about the components in power supply system such as Earth Leakage Circuit Breaker and Residential Current Circuit Breaker which is a safety tools to protect the electrical equipment and learn on Direct Current (DC). In *Electricity Power* explains on how to calculate the electricity based on given formula $P = V \times I$

1.5 Project Significance

The way to present information in this e-learning is clearer and efficient because it only focused on specific topics which are about electric that covered in Integrated Living Skills subject. The contents are more attractive because they consist of elements such as graphical, text and animation. It can enhance the student knowledge and make them more comprehend on this topic very well. It is a different approach to educate the students and make it interesting to learn by apply interactive e-learning using web based and it is more user-friendly. This e-learning hopefully can bring awareness especially for students on how to learn the topics in different medium interactively. So the information can be delivered and well understand.

1.6 Conclusion

This chapter explained about the project background of developing an Integrated Living Skills on Electric Form One using web based approach. It also describes the lack of problem in web based learning which is not presented to encourage students to seek

knowledge independently and achieve their learning goals. The aim of this project is to develop an interactive e-learning which is focus on the specific electrical topics for secondary school students that covered in Integrated Living Skills subject. Based on this project it will help the students to improve their understanding about the topics very well. As the conclusion, this e-learning can give more advantages especially for the students to learn the electrical topics in effectively.

The next chapter will be more on literature review where it requires a lot of research on fact and finding. Project methodology and project requirement will be discussed.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

A literature review is a summary of previous research on a topic. Literature reviews can be either a part of a larger report of a research project, a thesis or a bibliographic essay that is published separately in a scholarly journal. The purpose of a literature review is to convey to the reader what knowledge and ideas have been established on a topic and what are the strengths and weaknesses.

This chapter discusses about the fact and finding which are consist of searching, collecting and analyzing from all opinions on web based learning issues. This section also discusses about the definition of web based learning, the impact of technology on learning and research on the current web based learning.

Besides the literature review, this chapter also explains about the methodology that is used to develop this e-learning. This methodology describes the activities that done in every stage. Then, in the project requirements section include the software and hardware that is required in order to conduct the project followed by the project schedule and milestones of this project.

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2.2 Fact and finding

From the source gain from Wikipedia, the free encyclopedia found that a Web application is an application that is accessed via web over a network such as the Internet or an intranet. Web applications are popular due to the ubiquity of a client, sometimes called a thin client. The ability to update and maintain Web applications without distributing and installing software on potentially thousands of client computers is a key reason for their popularity. Web applications are used to implement Webmail, online retail sales, online auctions, discussion boards, Weblogs and many other functions.

According to Robert H.Jackson, Web-based learning (a major subcomponent of the broader term "e-learning") is one of the tools with which education is delivered. In traditional academic institutions, web-based learning systems are generally housed administratively in a "distance education" department alongside other at-distance delivery methods such as correspondence, satellite broadcast, two way videoconferencing, video tape and CD-ROM/DVD delivery systems.

All such systems seek to serve learners at some distance from their learning facilitator. Many such systems attempt to serve learners interacting with the learning source at different chronological times for example an email. Distance Education, then, is often referred to as those delivery modalities that seek to reduce the barriers of time and space to learning, thus the frequently used phrase "anytime, anywhere learning".

"E-Learning is learning in the digital age where technology is used to improve the learning. This would be not just over the web but might also be in the classroom."

-Elliott Masie-

From this findings source, e-learning describes the use of ICT technology for learning beyond the boundaries of the physical classroom. Traditional classroom learning can be an integral component of an e-learning solution when it is an option integrated into an institution or as a component of a blended solution.

The Internet is a tool that empowers society by opening the doors of knowledge to the people. E-learning brings learning to the people. Well-designed e-learning environment can provide a mixture of synchronous and asynchronous learning activities. It provides collaboration facilities that allow interaction between teachers and learners. Digital contents that are designed using good teaching methodologies or instructional models can have positive impact on the learners. Multimedia-rich content can be engaging while simulated experiment and game-based learning can be fun for learners.

From the finding gain from the case study, by Webster and Hackley found a positive relationship between students' attitudes towards technology and their learning outcomes in technology mediated distance learning. As the Internet and World Wide Web have expanded, opportunities to use it for teaching and learning have expanded too. Nowadays, the most widely used part of the Internet is the World Wide Web, also known as "WWW", "Web" or "W3". Through the use of hypertext and multimedia techniques including graphics, video clips and sound for cross-referencing and presentation, the web is easy for anyone to roam, browse and contribute to. Using the web, people have access to millions of pages of information and web "surfing" is done with a web browser, such as Netscape Navigator and Microsoft Internet Explorer.

According to Duchastel and Spahn (1996), the WWW as a network infrastructure has the great advantage of flexibility and low cost. The fact that WWW information is readily updatable and that users always access the latest version provides tremendous flexibility by eliminating the outdatedness of printed materials. The multimedia nature of the WWW can also provide an environment richer and more interactive than traditional paper-based alternatives. With the benefit of platform independence and global accessibility, web-based systems are ideal for distance or open learning courses.

Based on the finding source, idea come to develop this project by using web based approach and use the technology to improve efficiency, especially on E-learning For Integrated Living Skills on Electric. From this project students can precede their own pace and work from anywhere, at home or in school. Extensive hard-copy printing is not required; the pages can be linked to external sources of information. With the aid of a projection device, the pages can be used to support lectures or hands-on lab sessions.

2.2.1 Research for the current of web based learning on Electrical topics

Freewebs (http://www.freewebs.com/khbsatu/webstart.htm) is a web site of Integrated Living Skills for Form One. This web site has eight navigation flash text button which can link to other menus. Each menu includes notes based on Integrated Living Skills syllabus. Below is the example of main menu from *Kemahiran Hidup Bersepadu Tingkatan Satu*:
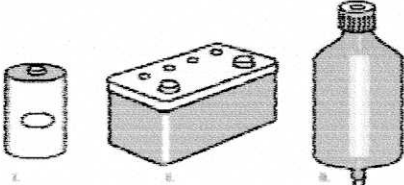
NOTA KEMAHIRAN HIDUP BERSEPADU SPM

Elektrik

MAKSUD ELEKTRIK

- Elektrik ialah tenaga
- Elektrik ialah pergerakan elektron dalam pengalir
- Elektrik boleh didapati dalam dua bentuk arus iaitu arus terus dan arus ulang alik.
- Elektrik yang dibekalkan kerumah-rumah adalah sebanyak 220-240V

SUMBER ELEKTRIK

i. Sel Kering   ii. Sel Basah   iii. Dinamo Basikal