

LAPORAN CADANGAN PROJEK 2

### **PORTABLE READING LIGHT**

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**JUNE 2020** 

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### PORTABLE READING LIGHT

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### JABATAN KEJURUTERAAN MEKANIKAL

### **JUNE 2020**

#### AKUAN KEASLIAN DAN HAK MILIK

#### TAJUK: PORTABLE READING LIGHT

#### **SESI** : **JUNE 2020**

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2. Kami mengakui bahawa PORTABLE READING LIGHT dan harta intelek yang ada di dalamnya adalah hasil karya/reka cipta asli kami tanpa mengambil atau meniru mana-mana harga intelek daripada pihak-pihak lain.

3. Kami bersetuju melepaskan pemilikan harta intelek 'projek tersebut' kepada 'Politeknik tersebut' bagi memenuhi keperluan untuk peanugerahan **Diploma Kejuruteraan Mekanikal** kepada kami.

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#### ABSTRACT

There are now a lot of outdated study lamp. Normal study lamp is designed not easy to carry around and they use a lot of space. The main purpose of this project is to improve the existing products to better to meet customer demand. Based on this problem the existing study lights can only be used on certain things and also these existing lamps are flammable if used for a long time. In addition, this study lamp is difficult to carry anywhere and it uses electricity source. The objective of this project is to design portable reading light with various facilities and make portable reading lights equipped with L.E.D. According to the method of this study is for a very careful planning system to help this project, the method must be arranged as best possible so that each project step will not be left. This portable reading light, has many features that can be used for improvements that will be produced to help the user among the improvements that will be produced is a place to charge the device and has a place to store books or scientific materials it is also easy to bring to the proper class or place and can save space.

#### ABSTRAK

Kini terdapat banyak lampu belajar yang sudah ketinggalan zaman. Lampu belajar biasa direka tidak mudah dibawa dan ia mengunakan banyak ruang. Tujuan utama projek ini adalah untuk menambah baik produk yang sedia ada kepada yang lebih baik agar dapat memenuhi permintaan pelanggan. Berdasarkan masalah ini lampu belajar yang ada hanya dapat digunakan pada perkara-perkara yang tertentu dan juga lampu yang sedia ada ini mudah terbakar jika digunakan dengan kadar masa yang lama. Selain itu, lampu belajar ini sukar dibawa ke mana sahaja dan ia mengunakan sumber elektrik. Objektif projek ini adalah untuk merancang lampu membaca mudah alih dengan pelbagai kemudahan dan membuat lampu membaca mudah alih yang dilengkapi dengan lampu L.E.D. Mengikut metodologi kajian ini adalah untuk sistem perancangan yang sangat teliti bagi memudahkan projek serta metodologi kajian ini mesti disusun dengan sebaik mungkin agar setiap langkah projek tidak akan ketinggalan. Lampu membaca mudah alih ini, mempunyai banyak ciri yang boleh digunakan ia untuk penambahbaikan yang akan dihasilkan bagi memudahkan pengguna antara penambahbaik yang akan dihasilkana adalah tempat mengecas peranti dan juga mempunyai tempat menyimpan buku atau bahan ilmiah ia juga senang dibawa ke kelas atau tempat yang betu; dan dapat menjimatkan ruang.

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#### **CHAPTER 1**

#### **INTRODUCTION**

#### 1.1 RESEARCH BACKGROUND

Electricity today is very important in parallel as the era progressed and the usage rate is increasing day by day. Availability of light sources came from electricity that improving productivity and health will consume a comfort and nice environment. However, most of student in Malaysia still use fluorescent lamps for studying.

The pendant lamp is made of glass containing mercury. Besides, there will be other many way that can avoid the pollution scenario and make some inventions to improving. However, there are other type of lights that call L.E.D. L.E.D is a light that have a lot of benefits and long term use. This material has a wide source but the development is quite slow.

Hence, after identifying the deficiencies, we decided to come up with the idea of using L.E.D type lamps, while providing the public with a broader knowledge of the amenities of these L.E.D lamps. This study inspired to create a new brand of easy-go study lamp by using a L.E.D lights with some other facilities. For example, low-power wireless portable charging and behind the work surface have a space can store a thing. In addition, it also helps students who are having difficulty in reviewing the study

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#### **1.2 PROBLEM STATEMENT**

The pendant lamp provides ultra-purple radiation (even in small doses). That, produces a bit of ultraviolet (UV) light. A 1993 study in the US showed that exposure to UV after sitting under fluorescent lamps for eight hours was equivalent to sunbathing for only a minute under the sun. UV light can affect sensitive tissues, especially water dyes and most textiles. This is a major problem since student are frequently need light source to do some revision.

Plus, buzzing noise when the lights are in trouble, they usually give off a bit of noise that the user may find annoying. It can be classified as noise pollution that can interfere with student's concentration. Next, difficulty in reviewing if electricity supply is lost, students cannot study in the dark. In addition, today's learning process is all about the concept of online learning (E-Learning). Therefore, the smartphones battery drain so fast and will make it difficult for students to find a place to charge the phone.

#### **1.3 RESEARCH OBJECTIVES**

#### *The objectives to this research are:*

- i. Makes it easy to read or complete work anywhere for student age (17 21) years old.
- ii. Reduces high energy consumption and is easy to dispose of because it lacks mercury.
- iii. Students will be more interested in reviewing because there are many functions that can make it easier in daily life not only for reading.

#### **1.4 RESEARCH QUESTIONS**

This study will answer the following research questions:

- i. Does the study lamp work for students to review the lesson?
- ii. Is it worth it if you are given the opportunity to have an gadget that lets you read and allows you to use low power sources?
- iii. Does this gadget simplify your day-to-day activities and save your time?

#### **1.5 SCOPE OF RESEARCH**

The scopes and limits to this research are:

- I. This product could never be exposed to water.
- II. Not suitable for kids age 7 below.
- III. Could last for a long time with a good care.
- IV. This product can break easily if it falls from a high place.
- V. This product cannot charge electronic items that use high powers.

#### **1.6 SIGNIFICANCE OF RESEARCH**

Although, the L.E.D lamps are rarely used in Malaysia because of the cost that quite expensive than fluorescent lamps and not everyone are willing to buy. Thus, this study will bring a lot of benefits which is worth the price since it is multi functional and not only for single use only. Plus, it will give a huge changing for every student that having a problem in their daily life. Moreover, it will absolutely benefits Malaysia since we are reducing the amount of chemical wasted in Malaysia.

#### **1.7 DEFINITION OF OPERATIONAL TERMS**

L.E.D Strip Light: An LED strip light (also known as an LED tape or ribbon light) is a flexible circuit board.

Polywood Sheet: A range of derivative wood products made from fibers, chips, strands, or veneers bonded with adhesives to form composite materials.

Powerbank box case: Battery container.

Lithium-polymer Batteries: Supply and storage of electricity.

#### **1.8 CHAPTER'S SUMMARY**

In this chapter, the studies was explained about its origin of ideas and inspirations. All the objectives were made out of all the problem statements. The objectives for this project with the importance of choosing a good products that eco-friendly and even the scope of this project only focusing at the L.E.D lights. Thus, this new L.E.D Study Lamp D.I.Y could be used for daily life with a good care for a longer time.

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### CHAPTER 2 LITERATURE REVIEW

#### **2.1 INTRODUCTION**

In this chapter, we will show you three materials that will be used to create the "Portable Reading Light" learning lamp. The descriptions that will be made refer to previous studies of learning styles. There are advantages and disadvantages in all three of these materials. Therefore, in this section we will describe the three materials and compare them to the projects that will be implemented. How many learning lights have been created by the creators to make it even easier for students who wish to stay up late at night to study lessons or to complete work assignments provided by lecturers. Learning lamps have been made in many forms, such as made of glass it also has a charging point for charging the lamps. This design is easy for students like students because it is easy to carry anywhere with no size and size and this lamp is suitable for students staying in the dormitory as it will not disturb other students who are resting but it is fragile due to lack of protection and can cause serious injury.

Next is the study lamp we usually see in the big market it is easy to carry anywhere but it also looks the right place. It has an adjustable arm and head for easy user control, has two charging devices at the same time as it has a USB port built into it and uses up to 85% less LED power and can hold up to 20 times. Longer than the incandescent bulbs. However, the price of these lamps is so expensive that students cannot afford them, the device for these lamps is also difficult to find in the event of a malfunction and at the same time charging can cause electric shock and it is extremely dangerous for users as these lamps can explode suddenly arrive. In addition, the lamps made from the box have the same brightness as the regular lamps and can be a gift because they are designed to attract consumers. Not only that the lamp can be carried anywhere with good thickness and can store the book inside it is already convenient for the user to not carry a bag.

In addition, the bookstore can only carry a few books it cannot hold heavy objects. The light of the box is also easy to pull out because the shelf life of the box is not too long, if exposed to water it can cause the box to seep and could cause the device's appliances in the box to break. Therefore, in this chapter we have explained the three materials that will be used in the "Portable Reading Ligh" study lamp.

#### **2.2 MATERIAL**

Prepared by Nurul Qamar Izzati Binti Fauzi

#### 2.2.1 INTRODUCTION

A material is a chemical or mixture of matter that forms an object. Materials may be pure or impure, single composites or complex combinations, living or non-living matter, whether natural or man-made, whether concrete or abstract. Material can be classified based on different properties such as physical properties and

In the industry, materials are inputs to the production or manufacturing process, perhaps whether raw materials, that is, are not processed, or processed before being used in advanced production processes, either through distillation or synthesis (synthetic materials).

#### 2.2.2 LED STRIP LIGHTS

An LED strip light also known as an LED tape or ribbon light is a flexible circuit board populated by surface mounted light-emitting diodes (SMD LEDs) and other components that usually comes with an adhesive backing. Traditionally, strip lights had been used solely in accent lighting, backlighting, task lighting, and decorative lighting applications. Increased luminous efficacy and higher-power SMDs have allowed LED strip lights to be used in applications such as high brightness task lighting, fluorescent and halogen lighting fixture replacements, indirect lighting applications, Ultra Violet inspection during manufacturing processes, set and costume design, and even growing plants.

LED strip designs are available populated with many different types of SMD, not only in different colours and addressable or non-addressable, by different shapes, sizes, and power levels. The most common types of SMD are: 3528, single colour, non-addressable, very low power; 5050, containing three LEDs allowing for RGB and addressable strips as well as higher power levels; 2835, a newer single-color SMD having the same surface dimensions as the 3528 but a larger emitter area and a thinner design with an integrated heatsink allowing for higher power levels; 5630/5730, a newer replacement for single-color 5050 SMDs which can operate at slightly higher power levels and have high efficacy. Less common designs may have 3014, 4014, 7020, 8020, or other SMDs. In addition to the LED SMD type, the quantity of LEDs per foot (or meter) is also an important factor in determining the overall power and brightness.

The appropriate brightness made us choose to put this lamp in the project. Not only that, these lamps are so thin that we don't need much space and we will connect these lamps with a magnetic switch so that when the user wants to use it they just have to open the project.



Figure 2.2.2 - LED Strip Light

#### 2.2.3 POLYWOOD SHEET

Poly wood is a material made of thin layer or plies of wood veneer glued together with layers next to their wood grain rotating up to 90 degrees apart. It is an engineering wood from the family of manufactured boards that includes medium density fiberboard (MDF) and particleboard (chipboard).

All poly wood binds to resins and fibers of wood (long, strong and thin cellulose) to form composite materials. This grain replacement is called a cross and has several important benefits: it reduces the tendency of wood to split when nailed to the edges; it reduces expansion and shrinkage, providing better dimensional stability; and it makes the panel strength consistent across all directions. Often the number of plies is odd, so sheets are balanced - this reduces warping. Because plywood is bonded to grains that run against each other and with odd numbers of composite parts, it has a high stiffness perpendicular to the pore surface grains.

We used this poly wood to replace our old idea of wanting to make this lamp out of the box. However, the box is thinner and not durable not only can it not hold heavy objects. Therefore, we chose this poly wood as it is durable, not easily torn or damaged.



Figure 2.2.3 – Poly wood Sheet

#### 2.2.4 Advantages of Electric Lamp

Since the light was released, its use has grown considerably and has been beneficial to consumers and the environment as it is everywhere in need of a light to illuminate. In addition, the light source used is LED which is 85% less energy efficient and can last 20 times longer than incandescent bulbs and lasts for up to 25,000 hours. Therefore, these lamps can also be used in many products such as the study lamp that we want to produce and not only to make these lamps last longer designers have found a way to make these lamps last longer by using the electric current in the product. Designers have also created this product by charging using an electric current as it makes the product last longer than battery life. On the product there is already a special place to charge for power supply. Not only that, this product also has 2 charging devices at the same time as a USB port is already installed on the product to charge the phone. The illumination of the study lamp is also very suitable for the user because of its brightness for those who stay awake at night for work or reading.

In addition, these learning lamps also have adjustments to the arm and head to facilitate movement according to the user's convenience. These lamps are also easy to carry where appropriate, they are also ideal for students staying in the hostel or students who study at night. In fact, these lamps can also be used in times of emergency for example when electricity is cut off can use these lights to brighten the area.

#### 2.3 METHODS

This method selection process is important so that the method choose is accurate and suitable for the product. This method selection will avoid money-lost and time taking processes. Hence, it is important to carry out this method selection process. There are three methods that could be carried out:

1) Leveling the wood surface



Figure 2.3.1

This process is very important because if the wood surface is not flat and lumpy it will result in the project will not looking smooth. Wood paint serves to ensure the wood is waterproof. In addition, wood paint also makes the project look more attractive. Besides, it also will allow termites to bury the wood and the wood will rot easily due to sunlight. It also saves time by using hand machines rather than having to use manual methods that involve a lot of physical energy.

2) Wooden Glue



Figure 2.3.2

Wood glue serves to attach two wooden surfaces. There are many types of wood glue according to the type of wood and the size of product. For this project Polyvely Acetate (PVC) wood glue is used to attach the wood before making permanent installation. This is so that the wood does not move when trying to nail and project will be neat and same level to other layer of wood.

#### 3) Soldering Process



Figure 2.3.3

Solder is a heater used to connect a network or component to electronic equipment. It is used on L.E.D wires connected to the switch. This process can last a long time and at the same time save costs for electrical maintenance.

#### **2.4 CONCEPT**

The project we are going to do is a book study concept that is called "Portable Reading Light" This concept is specifically designed for students or lecturers who prefer to stay up late at night to review, work or otherwise. This study also comes with a bright light colour that is great for the eyes of the user. In addition, this study lamp also has a bookcase for the convenience of the user if they wish to bring the lamp to a suitable place. Not only that, students sitting in the dormitory can use this lamp if they do not want to disturb the other students who want to rest. The special feature of this lamp is that it not only has a bookcase, it also has a USB port for easy access to users if they want to use the phone but at the time the phone runs out of battery, it can use the lamp as a charging point for the phone

#### **2.5 CHAPTER'S SUMMARY**

In conclusion, this chapter already tells us about the literature review it is important to present all the studies and materials that will be used to create the project. This is also to raise the level of knowledge for this project. In fact, everything related to this study lights us up with good and perfect knowledge.

After studying the cost we would like to make these lamps use wood so they can last longer, if we have previously wanted to use the box but when talking back the box is easily damaged and not durable. Although low cost but wanting to satisfy our users we have decided to use wood, the cost is also lower and longer lasting.

### CHAPTER 3 METHODOLOGY

#### **3.1 INTRODUCTION**

Methodology is a method that provides a systematic description of the flow of activities used to solve problems. The selection of methodologies in project development is an important aspect of ensuring that projects developed are implemented in a neat and systematic manner.

Research methodology is a very neat planning system. In order to facilitate this project, the methodology must be as well-structured as possible. As such, every step of the project will not be left out of the way. The end result of the study should be on the project issues to be resolved. Therefore, a high understanding of each process found in the methodological structure is very important.

Methodology also describes how a problem is studied and why a particular method and technique is used. The purpose of the methodology is to help better understand the application of the method by providing a description of the research process.

#### **3.2 FLOW CHART**

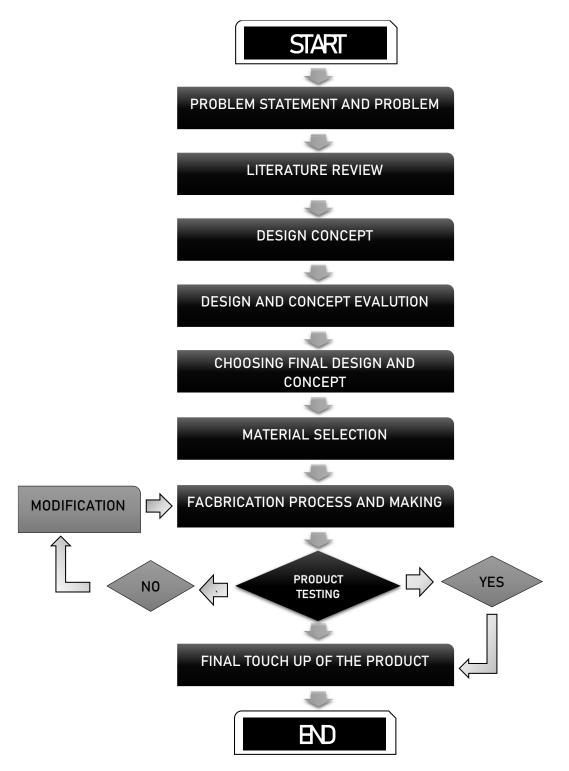
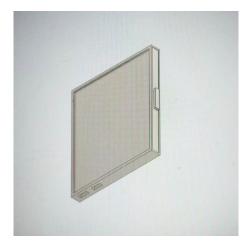


Figure 3.2.1

#### **3.3 FLOW CHART EXPLAINATION**

Prepared by Nurul Qamar Izzati Binti Fauzi

#### • DESIGN CONCEPT





• Firstly, this is the site for the book lamp project, to the right is a USB point for charging the phone or something.

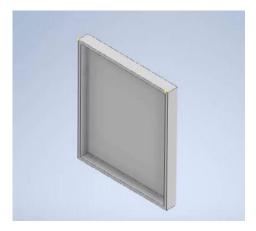


Figure 3.3.2

• After that, this is a bookstore, it is stored in the project site. Users simply need to pull the handle on the project site to save the book.

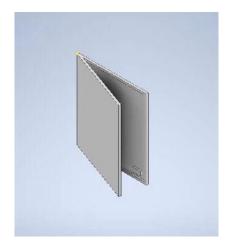


Figure 3.3.3

• This is the head of the project that controls the current of the LED light. If the lid is open the automatic light will be installed as there is a magnetic switch on the right side to control the lamp. And when the lid is closed the light goes off.

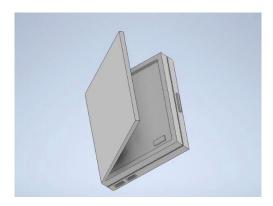


Figure 3.3.4

• Finally, this is our true project form. Shaped like a book, it is also easy to carry anywhere, especially in a convenient location.

#### • MATERIAL SELECTION

The process of material selection is one of the most important process in this final year project. The choice of materials is very important because it wants to avoid high risks such as money and time. Therefore, it is important to make sure that you do not choose the materials that will be used for the project.

Power bank box case



Figure 3.3.5 – Power bank box case

A power bank is a portable device that can supply power from its built-in battery through a USB port. Power banks are popular for charging USB charged devices. They can also be used as a power supply for various USB powered devices such as lights and small fans. They usually recharge with a USB power supply. The power bank includes a control circuit that both regulates charging of the battery and converts the battery voltage to 5.0 volts for the USB port. Some chargers for cells like 18650s and 26650 can also serve as a power bank. Although it is generally more cumbersome to carry such a charger with cells rather than a conventional power bank, this arrangement can also charge cells for other uses, and swap cells that are dead. It also has the advantage that, when the cells are dead, they can be swapped for fresh cells for immediate use rather than having to be recharged first. Then, we decide to use this because it can supply the power and this material very suitable to our project.

#### L.E.D Strip Lights



Figure 3.3.6 – L.E.D Strip Lights

An LED strip light also known as an LED tape or ribbon light is a flexible circuit board populated by surface mounted light-emitting diodes (SMD LEDs) and other components that usually comes with an adhesive backing. Traditionally, strip lights had been used solely in accent lighting, backlighting, task lighting, and decorative lighting applications. Increased luminous efficacy and higher-power SMDs have allowed LED strip lights to be used in applications such as high brightness task lighting, fluorescent and halogen lighting fixture replacements, indirect lighting applications, Ultra Violet inspection during manufacturing processes, set and costume design, and even growing plants. We choose this material because of the brightness are suitable for our project.

Lithium-polymer batteries



Figure 3.3.7 – Lithium-polymer Batteries

Lithium-polymer batteries is a type of rechargeable battery that generates its own power as a result of the movement of lithium ions from the anode to the cathode during the discharge process and back to its original charge position. These types of batteries use lithium compounds that are inserted as electrode materials, instead of the lithium metal used in lithium batteries that cannot be recharged.these batteries are commonly used in consumer electronics. It is one of the most popular types of rechargeable batteries for electronic mobile devices, and has the best energy-efficiency

Limit switch



Figure 3.3.8 – Limit Switch

A limit switch is a switch operated by the motion of a machine part or presence of an object. They are used for controlling machinery as part of a control system, as a safety interlocks, or to count objects passing a point. A limit switch is an electromechanical device that consists of an actuator mechanically linked to a set of contacts. When an object comes into contact with the actuator, the device operates the contacts to make or break an electrical connection. Limit switches are used in a variety of applications and environments because of their ruggedness, ease of installation, and reliability of operation. They can determine the presence or absence, passing, positioning, and end of travel of an object. They were first used to define the limit of travel of an object; hence the name "Limit Switch".

Polycarbonate Sheet



Figure 3.3.9 – Polycarbonate Sheet

Polycarbonates (PC) are a group of thermoplastic polymers containing carbonate groups in their chemical structures. Polycarbonates used in engineering are strong, tough materials, and some grades are optically transparent. They are easily worked, molded, and thermoformed. Because of these properties, polycarbonates find many applications. Products made from polycarbonate can contain the precursor monomer bisphenol A (BPA)

#### Polywood Sheet



Figure 3.3.10 – Poly wood Sheet

Polywood binds to resins and fibers of wood (long, strong and thin cellulose) to form composite materials. This grain replacement is called a cross and has several important benefits: it reduces the tendency of wood to split when nailed to the edges; it reduces expansion and shrinkage, providing better dimensional stability; and it makes the panel strength consistent across all directions. Often the number of plies is odd, so sheets are balanced - this reduces warping. Because plywood is bonded to grains that run against each other and with odd numbers of composite parts, it has a high stiffness perpendicular to the pore surface grains.

Stainless Steel Hinges Engsel



Figure 3.3.11 - Stainless Steel Hinges Engsel

A hinge is a mechanical bearing that connects two solid objects, typically allowing only a limited angle of rotation between them. Two objects connected by an ideal hinge rotate relative to each other about a fixed axis of rotation: all other translations or rotations being prevented, and thus a hinge has one degree of freedom. Hinges may be made of flexible material or of moving components. In biology, many joints function as hinges like the elbow joint.

#### • Material Purchase

For the material purchase process, this is very important to get all the necessary materials properly and well. In this process, a very important step for us is the risk of wastage of unnecessary material. Therefore, to prevent this from happening we make surveys from store to store as well and we make surveys on online purchases to calculate the amount of goods. Only after making the calculation can we find the better price and continue to buy the material.

#### • Fabrication Process And Making

#### Casting

- i. Casting is important in determine the shape and size of the wood to create a good size of our project. Then, the first step will be cutting the polywood using machine to desired shape.
- ii. Wood is scrapped to get a nice flat surface





Figure 3.3.12: Casting

#### Layering

- i. Layering is use for this project to perfecting the project from its naturals state to a coloured project.
- ii. We use syelek to make it look nicer.
- iii. We use this material by choosing a high tempreature paint

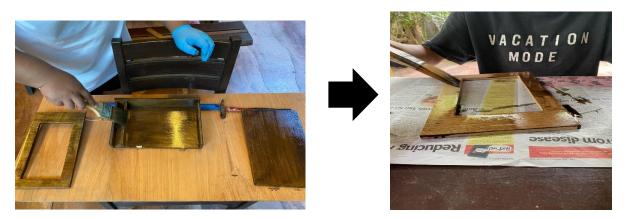


Figure 3.3.13: Layering

#### • **PRODUCT TESTING**

Test run is carried out to determine the strength, function and end result of the product. In this test run, poly wood is used for us to see the durability gained while doing the project. Firstly, all the wood is cut to the desired size to fit when project is installed later. After the wood is installed, we use selected materials to add the electric lighting elements to improve the project. Test run is carried out to see how much electricity we need to make this project go smoothly. After a few test runs, we declared we use a triple A size cell battery to maintain usage of electricity of our project.

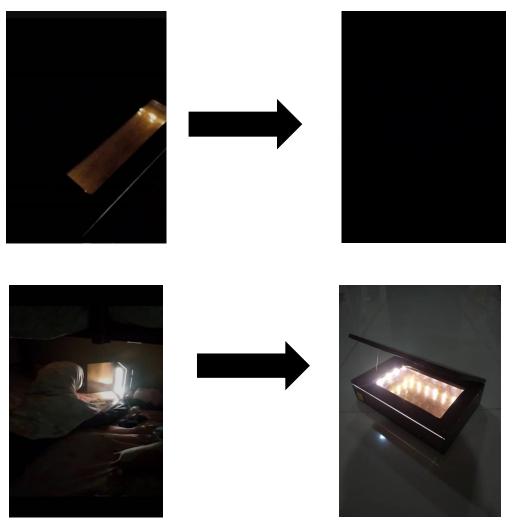


Figure 3.3.14: Test Run

#### • Final Touch Up of The Project

For final touch up project, we use woodshield to protect the plywood we use, as well as to finish the product. Next, we start with a test on our product whether it can be used or not. And lastly, we prepare the final report to be sent to our supervisor to give marks.

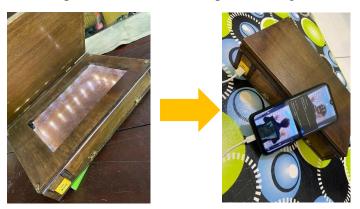


Figure 3.3.15

#### • Analysis Data

This data evaluation process is the use of the conquest of analysis and logic to check each part of data. This data analysis is a step that should be completed while conducting research experiments. The tested data were collected, conducted, studied and analyzed to from findings, discussions and conclusions that can be obtained from the entire data. For this project the data collection collected is from the project durability source as well as the level of lighting used.

#### • Report Writing

Report writing is the most important step in every project invented. It is important to make a report based on the project, test run and analysis so the future improves and expands knowledge. Our report writing is based on analysis and findings that we collected through this whole process of completing this project.

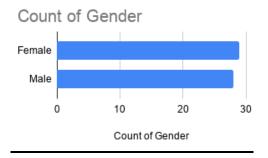
### **3.4 PROJECT ACTIVITY**

WEEK	STATUS	M1	M2	M3	M4	M5	M6	M7	M8	6M	M10	M11	M12	M13	M14	M15
DATE		10/8 - 14/8	17-8 – 21/8	24/8 – 28/8	31/8 – 4/9	7/9 – 11/9	14/9 – 18/9	21/9 -25/9	5/10-9/10	12/10 – 16/10	19/10 – 23/10	26/10 – 30/10	2/11 – 6/11	9/11 – 13/11	16/11 – 20/11	23/11 – 23/11 –
Project Activities																
Survey material and cost at market or online shopping																
Choosing material																
Making decision about the final design																
Go to buy the material																
Start doing the product																
Test the product																
Analysis data																
Prepare the presentation																
Final touch up the product and ready for presentation																
Presentation day Doing and																
sending the report																

#### **3.5 INTERVIEW AND RESEARCH**

We've done some research on the projects we're about to create. The purpose of this research question is to determine whether the project we are planning to work on is responsive or not. Throughout all the interview, some of question about whether this project is useful today for student or not. Other than that, we created something new by creating a mobile charge tool in one project and to see either with that innovation what responses will come out.

#### > <u>GENDER</u>





> <u>AGE</u>

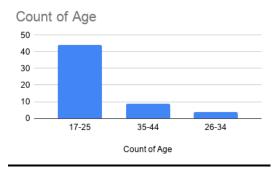
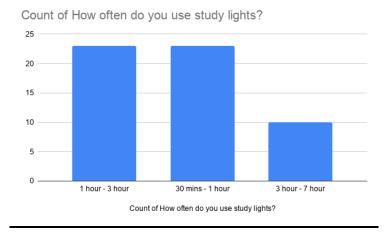


Figure 3.5.2

#### > HOW OFTEN DO YOU USE STUDY LIGHT





## > DOES THE STUDY LAMPS WORK FOR STUDENTS TO REVIEW THE LESSON

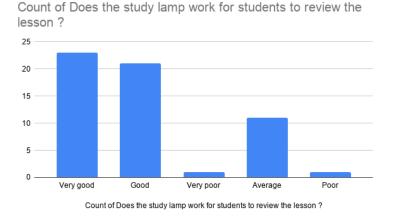
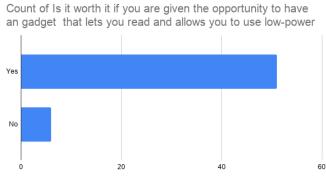


Figure 3.5.4

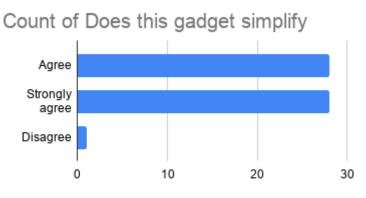
#### IS IT WORTH IT IF YOU ARE GIVEN THE OPPORTUNITY TO HAVE AN GADGET THAT'S HELP YOU READ AND ALLOWS YOU TO USE LOW POWER SOURCES



Count of Is it worth it if you are given the opportunity to have an gadget that lets you read and

Figure 3.5.5

#### DOES THIS GADGET SIMPLIFY YOUR DAY TO DAY ACTIVITIES AND SAVE YOUR TIME



Count of Does this gadget simplify your day-to-



#### **3.6 PROJECT DESIGN**

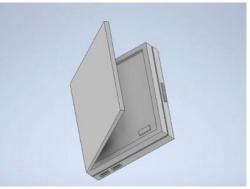
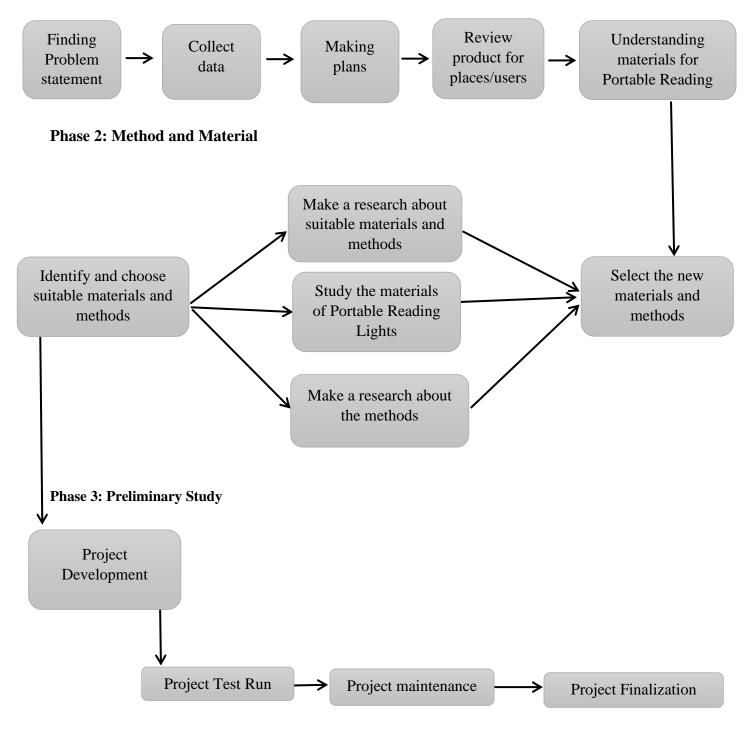


Figure 3.6.1: Final Design

#### **<u>3.7 METHADOLOGY PHASE</u>**

Prepared by Faridzul Hakeem





#### **3.8 BUDGET CALCULATION**

Prepared by Nur Dalila Binti Karim

No	Materials / Equipment	Amount	Price
1.	LED Stripe Light	1 meter	RM33.50
2.	Poly wood Sheet	3mm	RM42.00
3.	Power bank box cases	1 unit	RM11.90
4.	Lithium-polymer Batteries	1 unit	RM24.99
5.	Limit Switch	1 unit	RM2.50
6.	Polycarbonate Sheet	(4x200x250) mm 1 unit	RM15.00
7.	Single core	1 meter	RM1.00
8.	Nail	1 packet	RM3.00
9.	Stainless Steel Hinges Engsel	1unit x 4	RM8.00
		Total	RM141.89

Table 3.8.1

### CHAPTER 4 FINDING AND ANALYSIS

#### **4.1 INTRODUCTION**

Project findings and analysis are an aspect of theory or writing regarding the function and use of projects as well as project management related to the field of study. In addition, it should explain the results or results obtained after implementing a project that is working well or not.

Results are also important to ensure the project that is in progress have a good start or not so that it would not cost any problems during the project development. The results of the study can be supported by opinions that can strengthen the results of the analysis.

#### **4.2 PROJECT EVALUATION**

Prepared by Nurul Qamar Izzati

The production of a product through some of its design processes. The process by designing principles then develops concepts and specifications that fulfill the function, value, exterior shape of a product for the benefit of the user and manufacturer. The product is created to meet the needs of the user while also facilitating the user's use of the product. Therefore, we need to produce a product that is well-used and ergonomic. In addition, the design also needs to be modified so that users are not tired of the same design. That's why we designed the study lamp like a book because it was different from the rest of the market. This product is designed specifically for students or teachers who stay awake at night, and not only does this lamp have good brightness and is great for reviewing or doing school work.

Furthermore, choosing the right and quality study lamps is very important for users as it protects the eye from damage. As a result, many study lamps do not carefully choose the use of the light, which can cause damage to the eyes and can cause near or near blindness and can even cause glare. So we always choose light fixtures carefully so that users will experience the same fate as other users. While there are already a lot of products available for learning lamps in the market, we are refining our products with the right materials to place them. Not only can this product be a learning lamp, it can also be a gift because it looks like a chocolate box. We will make sure that this product will be liked by the users because of its design and functionality.

#### **4.3 CONCLUSIONS**

As a conclusion for this chapter, the analysis and findings have been made. This Portable Reading Light has a lot of advantages however there are every cons to pros. Hence, the challenges are taken as a room for improvements and more developments for future generation and well as to enhance their knowledge on the project we carried out. Test run is carried out to determine the fullest potential of L.E.D and it is proven that L.E.D are the good of lighting source than can be use.

#### CHAPTER 5

#### DISCUSSION, CONCLUSSION AND UPGRADE PLAN

#### **5.1 INTRODUCTION**

Each project has its own advantages and objectives. Although there are many weaknesses but many objectives have been achieved. The findings of this study are supported by opinions that can strengthen the results of the study and thus reach its conclusion.

The findings from the study are used to discuss whether the proposed hypotheses are supported. All research questions will be answered subsequently and finally the achievement of research objectives are determined. Conclusions are made based on discussions of the findings of the study and some suggestions are also available for use in future studies.

Lastly, based on the results of the creation and completion of this project, it was found that this designed project will benefit everyone as it helps to use the lighting technology more creatively.

#### **5.2 SESSION DISCUSSION**

Discussions were held every week to discuss the project development. All the problems are discussed so that it can be solved quickly. Problem that can't be handled were addressed quickly to the lecturers. To make the project difficult everything that is going to be done must be planned properly (proper planning). This can ensure the project move smoothly without any interruptions.

There are some major research questions raised in this study. The first question is, how can an individual use this project we created as a useful and innovative product. It became a habit as a reader who wanted to use the lamp for support when reading in dark places. While this idea may seems a bit simple we have also made some improvements to add more functionality to the project.

Other than that, this gadget can be used when we go out because besides use it for reading it can be use to charge our smartphones and so on. The answer is yes, as our project provide a place for supply a electricity when needed. Not only a cell phone but other electrical device can use as well.

#### 5.3 Benefits for Society and Industry

The advantage of our project is this project that we have built does not consume a lot of energy to take it anywhere we want. It also helps the user to charge any type of electrical device regardless of place and time. In addition, users can use this project as a light while in the dark and can make it easier for users to find something at that time.

This project also uses used items in order to prevent environmental pollution. For example, we use Poly wood sheet materials to avoid using hard materials such as metals and other materials that are decomposable. Therefore, we can avoid contamination that may cause these symptoms to develop.

Besides that, our projects often this project is used by teens, it can also be a gift. It attracts the public with the pleasure of consumers in the modern age.

#### 5.4 Suggestion to Further This Study in Future

The projects we build have the potential to help as many consumers as possible in the modern innovation industry. For example, many people create lamps but do not think about the effects of deleting the project. We make sure the material used does not use many items that can be parsed. We can reduce pollution and even give a lot of fun to every user who uses it. Therefore, we guarantee our projects helps a lot by helping people in many ways in this modern age.

#### **5.5 CONCLUSIONS**

The use of this product of this product provides us to be more creative by inventing this kind of product to public. It also gives the opportunity to us to maintain a easy lifestyle by carrying around our product. It also provides users to see and do things more easy such as helping people to read, find things and many other things. We hope by inventing this project would help more people to have an easy lifestyle in future.

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