POLITEKNIK SULTAN SALAHUDDIN ABDUL AZIZ SHAH

PORTABLE i-DESK

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CIVIL ENGINEERING DEPARTMENT

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This report is submitted to the civil engineering department in fulfilling of the requirements of the Diploma in Building Services Engineering.

CIVIL ENGINEERING DEPARTMENT

JUN 2019

RECOGNITION OF AUTHENTICITY

AND OWNERSHIP

TITLE : PORTABLE i-DESK

SESSION : DISEMBER 2018 – JUN 2019

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2. We acknowledge that "The above project" and its intellectual property are the originals of our original works / creations without taking or imitating any intellectual property from others.

3. We agree to transfer the intellectual property "of the project" to "the polytechnic" to meet the requirements for the grant of **Building Services Engineering Diploma** to us.

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as project supervisor on the date: …….) NUR HAZLINA

APPRECIATION

First and foremost, thank God for granting all our prayers and wishes for the planning and execution of this project.

The authors would like to express their sincere appreciation to the project supervisor, for the guidance and discussions provided throughout the project.

Last but not least, please do not forget that this award is also given to anyone who directly or indirectly assisted in the production of this project.

ABSTRACT

Portable i-Desk is an innovative desk. It is an easy-to-move desk as it has 4 wheels on the base of the desk and it is the first objective for this desk. Because of that, we need to make sure that this desk can be used when needed and more importantly, it is always safe. It aims to do something like browsing the internet using a laptop or doing paper works. The second objective achieved is that the desk has a variety of functions, one of them is that the desk can be folded. In addition, it has lockable wheels and drawer to put things in it. Next, on the right of this desk has a "Power Strip with Socket 3AC + 6 USB Ports". The left side of the desk has a cable connection to connect to the main plug. This desk has been tested at a company called JIDAH AL RIZQIN RESOURCES for the learning and needs of the Final Year Project. The purpose of this study is to facilitate users like students and workers so that users can use this product safely and comfortably. Respondents for the survey were 67 people aged 20 years and over 50. Data analysis was obtained through a questionnaire to the respondents and analysed by collecting answers. The results shows that the majority of the respondents agreed with the desk based on the objectives of which 63 respondents agreed with the objective which stated that the desk is easy to move. The second objective is that 62 respondents agreed that this desk has multi-functions. In conclusion, the results of this study indicate that this desk is easier and more comfortable for users such as students and workers who need it.

Keyword: desk, multi-functions, easy to move

ABSTRAK

Portable i-Desk merupakan meja yang diinovasikan daripada meja yang sedia ada. Ia merupakan meja yang mudah untuk bergerak kemana-mana kerana ia mempunyai 4 roda di bahagian kaki meja dan ini merupakan objektif yang pertama untuk meja ini. Oleh kerana kepentingan itu, maka kita perlu memastikan meja ini boleh digunakan bila diperlukan dan yang lebih penting adalah meja ini sentiasa selamat. Ia bertujuan untuk membuat sesuatu kerja seperti melayari internet dengan menggunakan komputer riba atau membuat kertas kerja. Ojektif yang kedua yang dicapai ialah meja ini mempunyai pelbagai fungsi, salah satunya ialah meja ini boleh dilipat pada bahagian kaki meja. Selain itu, meja ini juga mempunyai roda yang boleh dikunci dan mempunyai laci untuk menyimpan barang. Seterusnya, pada bahagian kanan meja ini terdapat "Power Strip with 3AC Sockets + 6 USB Ports". Pada bahagian kiri meja pula mempunyai wayar penyambung untuk disambung ke palam utama. Meja ini telah diuji di sebuah syarikat yang bernama JIDAH AL RIZQIN RESOURCES bagi pembelajaran dan keperluan Projek Tahun Akhir. Kajian ini bertujuan untuk memudahkan pengguna seperti pelajar dan pekerja supaya pengguna boleh menggunakan produk ini dengan baik dan selesa. Responden kajian tersendiri daripada 67 orang yang berumur daripada 20 tahun sehingga 50 tahun ke atas. Data kajian diperolehi melalui agihan soal selidik kepada para responden dan dianalisis secara pengumpulan jawapan. Hasil kajian mendapati para responden kebanyakan mereka bersetuju dengan meja ini berdasarkan objektif yang telah ditetapkan iaitu seramai 63 orang bersetuju dengan objektif yang menyatakan bahawa meja ini mudah untuk digerakkan. Objektif yang kedua pula seramai 62 orang bersetuju bahawa meja ini mempunyai pelbagai fungsi. Kesimpulannya, hasil kajian ini telah menujukkan bahawa meja ini lebih mudah dan selesa untuk digunakan bagi pengguna seperti pelajar dan pekerja yang memerlukan meja ini.

Kata kunci: meja, pelbagai fungsi, mudah bergerak

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LIST OF SYMBOLS

SYMBOL	
th	Year
%	Percentage
a.m	Morning
mm	Milimeter
kg	Kilometer

LIST OF ABBREVIATIONS

USB	Universal Serial Bus
LR	Literature Review
KPM	Kementerian Pendidikan Malaysia

CHAPTER 1

INTRODUCTION OF PRODUCT

1.1 INTRODUCTION

Table, basic article of furniture known and used in the Western world since at least the 7th century BCE, consisting of a flat slab of stone, metal, wood or glass supported by trestles, legs, or a pillar. The desk is a table dedicated to reading or writing, and as such originally implied a sloping top. The sloping top, in fact, constituted practically the entirety of early desks, since these were used primarily in monasteries and universities before the invention of the printing press when the books that were read or written were large parchment volumes. Tables of various shapes, heights, and sizes are designed for specific uses:

- Dining room tables are designed to be used for formal dining.

- Bedside tables, nightstands, or night tables are small tables used in a bedroom. They are often used for convenient placement of a small lamp, alarm clock, glasses, or other personal items.

- Coffee tables are low tables designed for use in a living room, in front of a sofa, for convenient placement of drinks, books, or other personal items.

- Refectory tables are long tables designed to seat many people for meals.

- Drafting tables usually have a top that can be tilted for making a large or technical drawing. They may also have a ruler or similar element integrated.

- Workbenches are sturdy tables, often elevated for use with a high stool or while standing, which are used for assembly, repairs, or other precision handwork.

- Nested tables are a set of small tables of graduated size that can be stacked together each fitting within the one immediately larger. They are for occasional use (such as a tea party), hence the stackable design.

That are so many type of table, function of table and design usually for human's working. The table should have ergonomic design, comfortable, and also affordable. Consequently the desk evolved into what we now call a desk box: a relatively small box with a sloping lid. For several hundred years the term "desk" implied something portable, even when fitted with small drawers and made large enough to store several books and various writing impedimenta.

An important exception, and one than presaged the flat-topped modern desk, was the kneehole desk: a small cabinet designed for writing with drawers surrounding a central recess that allowed the user to sit up close to the writing surface. Desk nowadays usually used in overall kind of work such as study, drawing, work, reading, when using a computer and so on. So, that's why as an engineer we should know how to improve or innovate desk to be eco-friendly to humans, more ergonomic, more elegant and verse tail more comfortable and must be perfectly affordable.

1.2 BACKGROUND RESEARCH

According to a 2017 survey out of the Society for Human Resource Management, standing and study desk are the fastest growing benefits trend; 13% of employers provided or subsidized them in 2013; 44% did so in 2017. More than 53% of students provided or used study desk when their study or doing work. Varidesk, a maker of sit-to-stand desks, has grown from one employee to more than 200 in less than five years, ships to more than 30 countries daily and has more than 1 million users of its products worldwide, according to the company's CEO, Jason McCann.

It's easy to see why. One 2014 study in the International Journal of Environmental Research and Public Health found that giving a bunch of desk jockeys adjustable desks – which users can raise when they want to stand and lower when they tire – reduced their sedentary time by more than three hours a week. It also increased their sense of well-being and energy, while decreasing fatigue and appetite. A more recent study found that call centre employees with sit-stand desks were almost 50% more productive than their colleagues who sat in the office; while other research suggests standing desks can be helpful for weight maintenance.

But there are caveats. Namely, you have to be the right kind of person in the right kind of job (Cho wasn't), and you have to use the furniture in the right kind of way. "The majority of people who get frustrated (and ultimately leave) a standing desk [do so] because they're not taught how to correctly utilize it," says Kamron Kunce, a spokesman for the adjustable-height desk company UpDesk. – By Anna Medaris Miller, Staff Writer Dec. 4, 2017, at 11:30 a.m.

There are some benefits that people need to know. Standing desks are very comfortable and they make working so much easier. You can stand and relax while you are working and the desk has enough room for your computer and other things that you need at your desk. When you start using a standing desk, it can take some time to get used to it. Most people spend so much time sitting hat it can be difficult getting used to this new type of desk.

The desks are affordable and they are going to make your work easier. You get to enjoy standing and your legs aren't going to get stiff like they can get when you are sitting for long periods. Sitting for long periods is terrible for your body and it can also lead to health problems.

You can move around while you are using your standing desk and you can even do stretches while you are sitting at your desk. You are going to be amazed at how much more energy you have when you are using a portable standing desk. You can move the desk around the office or your home and you are not tied to one place when you use a portable desk.

Portable desks are a great option in any type of situation and they can make your life a lot easier. Using a portable standing desk is going to be a good idea if you want to stay healthy.

1.3 PROBLEM STATEMENT

The problem faced by the users is that the existing table is difficult to move because it does not have a wheel-like medium that can easily change the table. In addition, most desks have limited space because users constantly place their work items neatly and neatly. In fact, existing desks have a difficult time adjusting to the user's posture when completing tasks because almost all tables are not included once with a chair that is appropriate to the height of the desk and ergonomics for the user himself. Further, the existing table also does not include a good source of power for electronic medium use. Lastly, the existing table also lacks more ergonomic features that emphasize user safety, including the use of curves at the corners and edges of the table.

1.4 OBJECTIVES RESEARCH

The objective of this research is to:

1. Provides a multi-functional desk.

2. To facilitate the moving desk.

1.5 SCOPE RESEARCH

The scope research is **dimension and design** which is emphasizing that ergonomic (“ergon” – human/work, “nomos”- research) suitable especially for users like students and office workers that need Portable i-Desk so they can doing their works and studying easily. Besides, the students and office workers will feel comfortable when they use the Portable i-Desk because it is portable, adjustable and also uses in a good human posture. For example the desk can put it between bed and in front of sofa when working or study. The dimension for Portable i-Desk is 1300mm x 540mm x 600mm suitable for all situation such as using when on a bed, sofa or use it as study or work table.

Second, the scope research is **privilege** that need to know are to improve the existing desk to more interesting and useful. Next, this Portable i-Desk is more focused on students and office workers who often doing works and studying at home. Besides that, it is portable so the desk can easily move anywhere. Lastly, it is easier to complete the works on it

Third, the scope research is **target marketing** which is especially for users like students and office workers that need Portable i-Desk so they can doing their works and studying easily. The students and office workers will feel comfortable and when they use the Portable i-Desk because it is portable and adjustable. For examples, the desk can put in between bed and in front of sofa.

Lastly, the fourth scope research is **material** which is this project use a pinewood type and nice finishing for customers look. It also use metal to stabilize this desk and use the electrical device output and others.

1.6 RESEARCH INTEREST

The importance of research to know is to improve existing tables to be more interesting and useful. Next, Portable i-Desk is more focused on students and office workers who often work and study at home. Additionally, it is portable and equipped with ergonomic chair suitable for that desk so users can feels the comfort. As such, there are improvements in terms of ergonomics and aesthetics that this table is designed to provide comfort and keep posture to consumers. Last but not least, it is easier to complete the work on it as it has a larger space and also have drawer for keep things inside the desk. It also has a space for charging electronic items such as computers and others.

1.7 DEFINITION OF TERM/OPERATION

"Portable" means to transfer or able to be easily carried or moved, especially because being of a lighter and smaller version than usual. "i" means is an intelligence that have more improvement in table innovation such as electrical socket, can fold and also neat with nice finishing. Last but not least, "desk" means a furniture with flat surfaces that used to study or work easily.

1.8 CHAPTER SUMMARY

The conclusion obtained from this innovation is that I can learn about history of desks, type of table, and the advantages or disadvantage of the desks. Furthermore, the desk can also be innovated to more interesting and useful so that the users can use the designed desk comfortably such as engineer designed more ergonomic to sure that humans posture also important to care. Besides, nowadays, humans want to work or do it easily without waste of time, such as a desk must have electrical socket and others. Then, I learned that teamwork is very important so that works can be easily done. Last but not least, hopefully, what has been done before this will make it as a guide and lesson in the future because success comes after failure. Like as the poet said many important things in this world are achieved by those who are trying, though they have no hope - Dale Carnegie.

Figure 1: Transformation of desk

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

For many years since 16 century, table or flat surface with four leg is used as place to put anything on it. Beside, that, table can be used to writing, study and making many work such as doing drawing, making homework and others. We already know many table have a big size and difficult to move at other place and bring it. So many designs right now become fordable table that have more easy to use, can fold, move to other place and bring it. Foldable table is thing that can fold from large to become a small size such as briefcase, box and others. Fordable table is the most interesting to people used to camping, picnic because easy to bring it. Many products at the market have different specification, shape and type when manufacture by different manufacturing company.

Research about table is to get data to make a new concept of portable table. That are so many type of table, function of table and design usually for human's working. For example, dining table, console table, study table, coffee table, drawing table and others. The table should have ergonomic design, comfortable, and also affordable. Every table or desk created has its own advantages and abilities. For example, table that made by plastic are lightweight, and cheap. It can move or bring to another places easily.

In other words, all kind of table have their own characteristic. For more innovative, in this project, the table made by pinewood as a main and some steel to be more sustainable. Usually know that pinewood is either that lightweight, strong, nice decoration and so on.

Last but not least, desk nowadays usually used in overall kind of work such as study, drawing, work, reading, when using a computer and so on. So, that's why as an engineer we should know how to improve or innovate desk to be eco-friendly to humans, more ergonomic, more elegant and verse tail more comfortable and must be perfectly affordable.

2.2 CONCEPT / THEORY

Based on the common table now, almost all tables have basic features in a table. They only have legs, the surface of which cannot be changed, widened, and unable to change the height of the table itself. The existing table also has feet that have no wheels to move easily as much as the innovation done on this project.

Each table designed to meet the needs of the user is one of the most important features of the ergonomic itself, so each engineer needs to identify things that need to be taken care of. Based on the various issues and constraints faced by the existing desk, then this table can help the user with a special and modify the table in general.

The concept used is also improved by producing more ergonomic tables, more stable, and there are various additions in this table to be more user-friendly. Among the drastic additions in the project is that there is an electric socket to meet the needs of electrical appliances, and this table has an arch in front of the table for consumer safety.

.

2.3 PREVIOUS RESEARCH

2.3.1 Ergonomic portable laptop table

Based on the research that can be listed, there are several table products marketed now as references for improvements in this project. As a result of the concept presented, the first table of reference is that this laptop-designed laptop is capable of being driven by having 4 wheels on its feet, as well as having an ergonomic surface facilitating the use of laptops in long hours. *Rush R (*1999) .This table also has a special space to place a laptop and has a charging slot and additional battery in the table itself. It is therefore an object of the present invention to provide an improved portable desk for use with a laptop computer which facilitates ergonomic, comfortable, and efficient use of a laptop computer. *Adrienne J. (*2000). However, one aspect of the virtual office that leaves much to be desired relates to the fact that, although the functionality of these systems is great, the ergonomics involved with their design is not. For example, *Adrienne J.* (2000) also shows the diagram about the laptop desk.

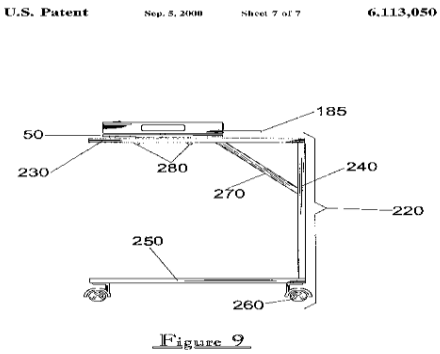


Figure 2: Laptop table design

Besides, from articles *Adrienne J.* (2000), other objects of the present invention include providing a device that is lightweight in design, strong, durable construction, ergonomically style and easy and cost-effective to manufacture. The foregoing description is included to illustrate the operation of the preferred embodiment and is not meant to limit the scope of the invention. The scope of the invention is to be limited only by the following claims.

Adrienne J. & Rush R. (1999) (2000)

2.3.2 Fordable table

From second article, *David K. Jones* (2015), Tables are used in many different environments for many different purposes. For instance, in an office environment, tables may be used in a partition space as a desk top to support a seated person, as a monitor support, as a conferencing table for seated conferees, as a standing conferencing table, as a work station supporting surface for a standing person, etc. Where tables are used for many different applications, ideally, the tables are constructed to have task specific heights that are ergonomically correct. From this article, for user comfort, a desk must be fordable and adjusted to facilitate the work and maintain the body's posture even in the long-term use of the table. The inventive concepts described herein pertain to tables and, more particularly, to a vertical and adjustable support for tables or the like fordable type.

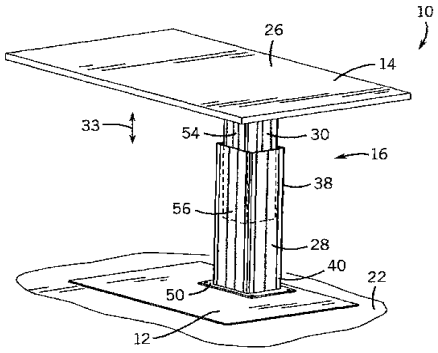


Figure 3: Fordable table

David K.Jones & Kurt Heidmann (2015)

2.3.3 Type of ergonomic desk

From third article, *Sergio de Oliveira* (2002), an ergonomic desk comprises a work-surface with a cut-out opening having a ladder-like frame positioned therein. Otherwise, an ergonomic desk also have adjustable height to ensure comfortable of users. It also have a curve, circle or not sharp to avoid from injury. This concern for the health of users occupying computer workstations has resulted in the establishment of minimal ergonomic standards.

Sergio de Oliveira (2002)

2.3.4 Type of wood for table top

In others previous research that related is by article *Furniture 123*, Wood is one of the most commonly used materials in the world, and almost any type can be used to build wooden furniture. Each type of wood has its own unique characteristics, which in turn can add different degrees of warmth, emphasis and beauty to its surrounding decor. We've put together this handy guide to help you choose which type of wood is right for your furniture. With our guide we'll give you the low down on some of the most popular wood types available and explain their different characteristics as well as the differences between hard and softwood, grains and colour. We also clear up any fears you may have over Medium Density Fibreboard, how common it is, and we explain how a veneer can give any piece of furniture that expensive finishing look.

Figure 4: Type of wood

From all type of wood, A Pine wood is the type of wood that being use for this table. It because pine is very affordable and lightweight with a pale finish which is great for staining. It is less durable wood compared to hard woods such as maple or oak. Pine blends well with other woods, making it ideal if you are looking for furniture that will match existing pieces in your home. *Furniture 123* (2016).

Furniture 123 (2016)

2.3.5 Power outlet for desk

For this previous research, power outlet for desk are typically useful for nowadays. The power outlet such as USB, plug and other are located on table top. *Shane Weaver* (2017). This means people have to avoid from other accident such as spilled a glass of water to the power outlet or others. Many power outlet on the table top have become more untidy if the people use more plug to charge at the same time. It can be dangerous for the people. In other words, power outlet for desk must be innovate to create a new power outlet location.

Figure 5: Type of electrical socket

For innovate, our design is the power outlet will be attach at the left site of the desk to make more safety and neat. It also be more aesthetically pleasing and professional look.

Shane Weaver (2017)

2.5 CHAPTER SUMMARY

In conclusion, what we can get is a table used as place to put anything on it. Beside that table can be used to writing, study and making many work such as doing drawing, making homework and others. We already know many table have a big size and difficult to move at other place and bring it. Besides, there are 5 main article which the desk can also be innovated to more interesting and useful so that the users can use the designed desk comfortably such as engineer designed more ergonomic to sure that humans posture also important to care.

Besides, nowadays, humans want to work or do it easily without waste of time, such as a desk must have electrical socket and others. In other words, this table are innovate by the old type of table which is a normally do not have any portable switch or else. Last but not least, hopefully this Literature Review (LR) can help to do our project without dismiss the content and also help to in succ

CHAPTER 3

METODOLOGY

3.1 INTRODUCTION

This section describes the methods and techniques of forming, collecting and analysing data to produce evidence that can support a study (summarizing what is being studied). Additionally, to help understand more about (more detail) about the application of the method by making a description of the review process.

This chapter also gives an outline of research methods that were followed in the study. It provides information on the participants, that is, the criteria for inclusion in the study, who the

participants were and how they were sampled. The researcher describes the research design that was chosen for the purpose of this study and the reasons for this choice. The instrument that was used for data collection is also described and the procedures that were followed to carry out this study are included. The researcher also discusses the methods used to analyse the data. Lastly, the ethical issues that were followed in the process are also discussed.

3.2 RESEARCH DESIGN

This project was designed based on the existing table at the beginning before taking into consideration the improvements made. Various initial designs can be devoted to us based on research in all aspects including ergonomics, neatness, simplicity, and not forgetting also at market prices so as not to exceed existing prices. Among the initial designs of this desk project are as follows:

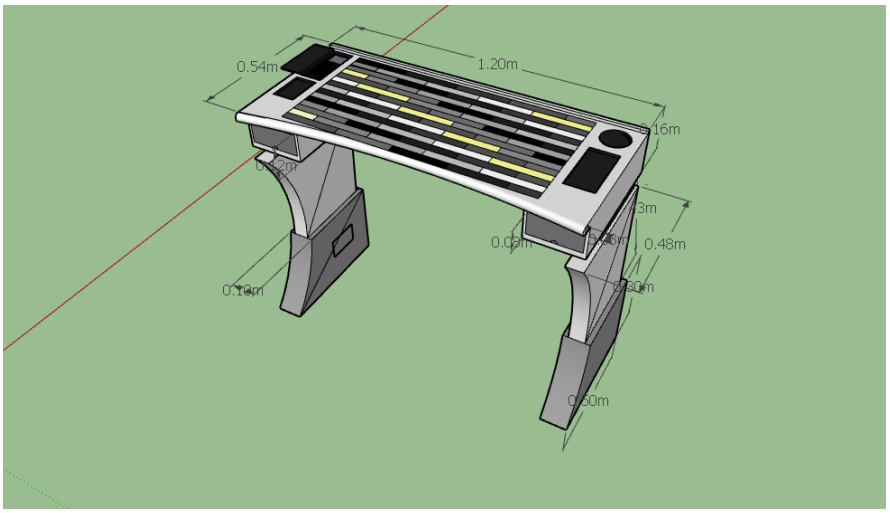


Figure 6: Front initial design of this desk

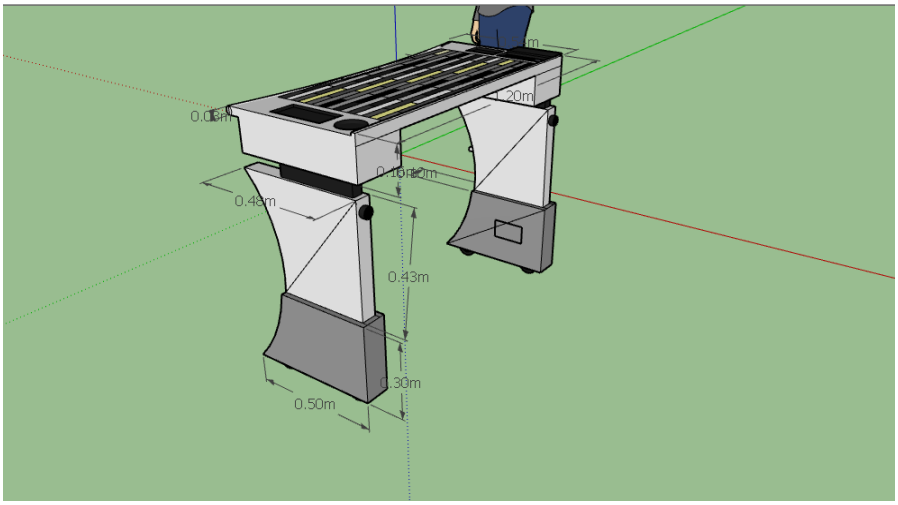


Figure 7: Back initial design of this desk

After many design that I planning and sketch in the Sketchup Pro 2018, one of the best design that we choose the classic modern contemporary design. It because a desk like a classical modern like a traditional type with an innovation like comes with electrical socket, portable and fordable type of desk.

Figure 8: Front angle of desk

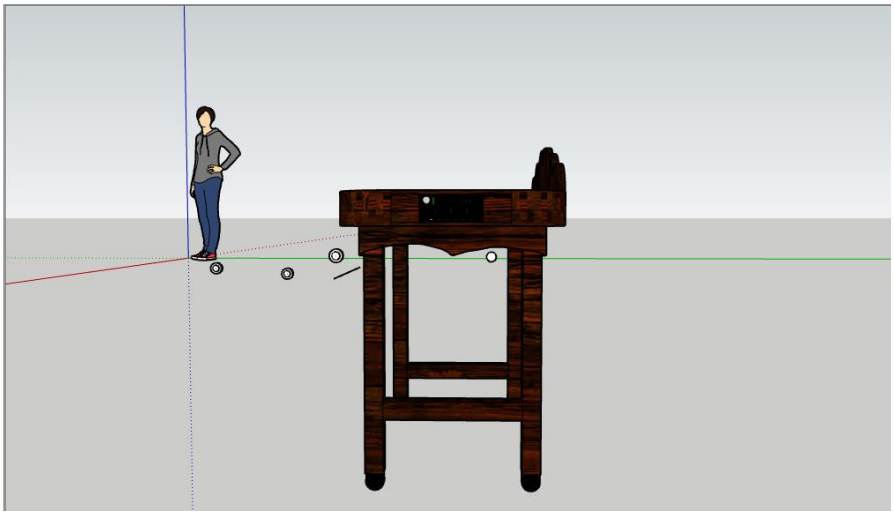


Figure 9: Side angle of the desk

Figure 10: Design of the desk

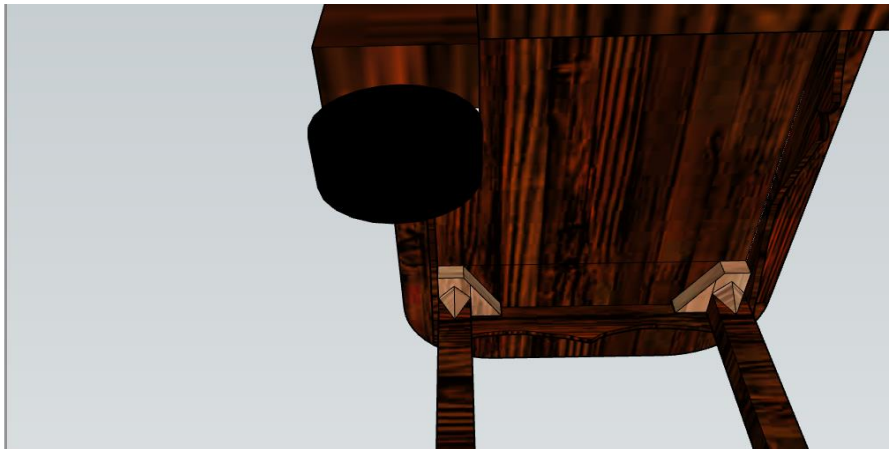


Figure 11: shows the wheel

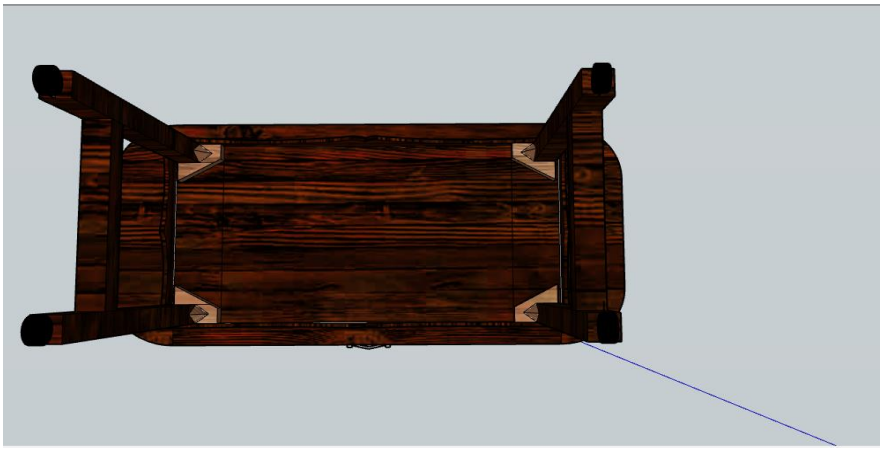
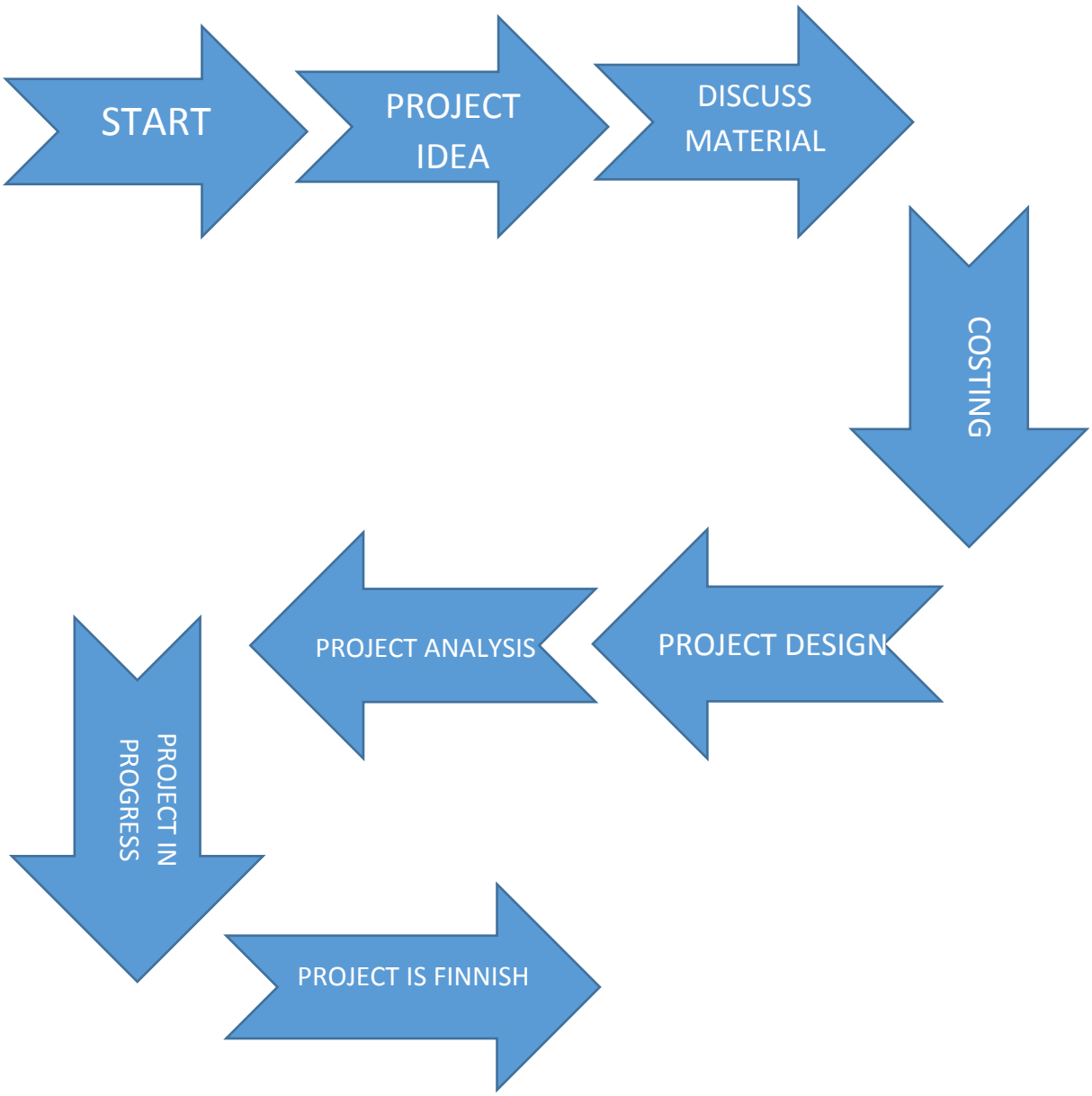


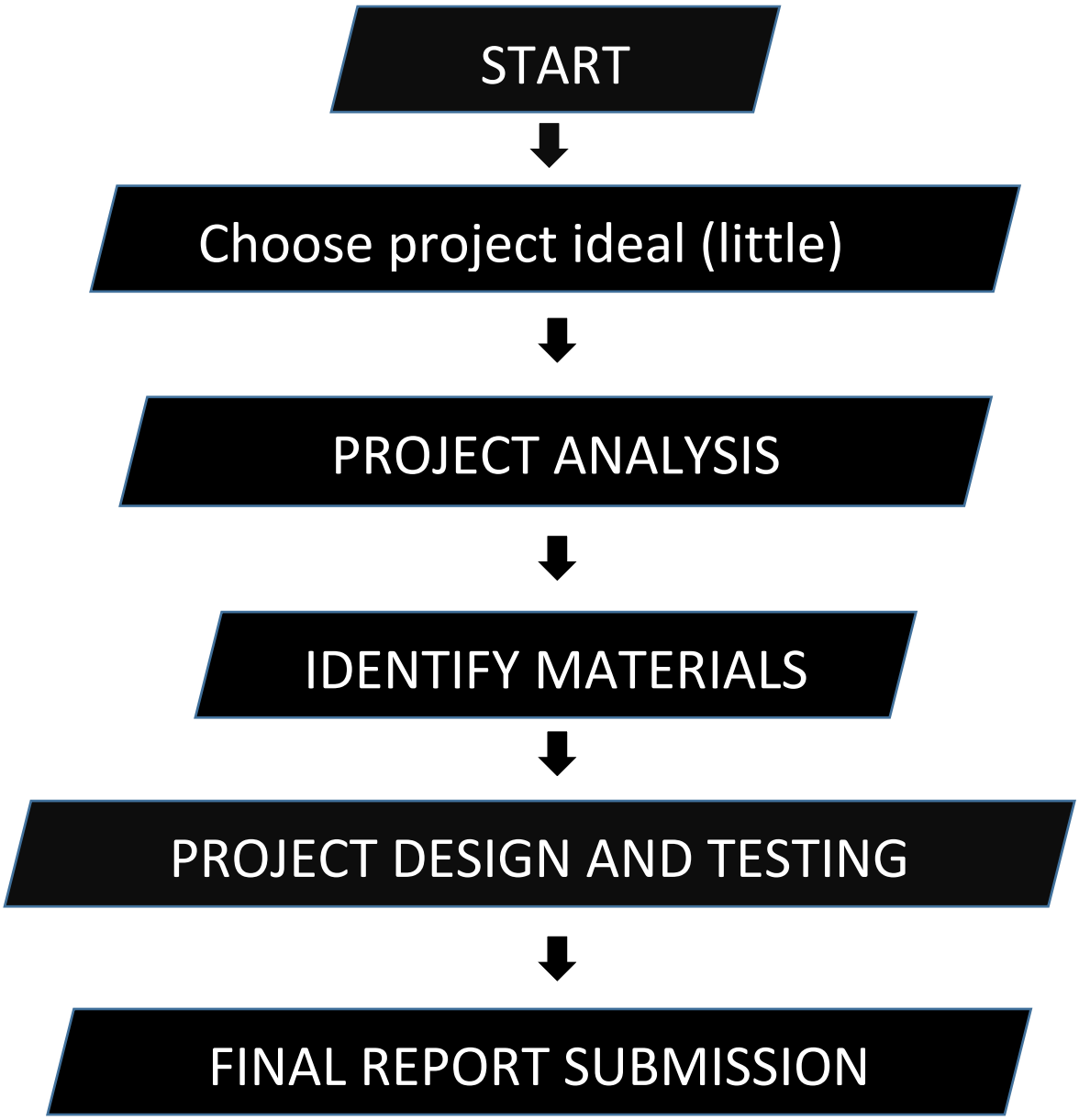
Figure 12: Design bottom of the desk

3.3 DATA COLLECTION METHODS

3.3.1. For this method, to make this project success, some steps need to be taken and must be followed to ensure that the project will be easy and successful. This flow chart should be referred back to assist before or during the project. This flow chart will help us because it can follow all the directions. Among the steps that need to be followed are as follows:



3.3.2 Flow chart about on how to write a report



3.4 INSTRUMENTS RESEARCH

This research is about the materials used to make the project success.

Figure 15: Pinewood

Figure 16: Locked Wheel

Figure 17: Table Hinges

Figure 18: Universal Socket

Figure 19: Vacuum Cleaner cable

3.5 WORKING TECHNICAL

In this segment, Researchers use two major sampling techniques which is probability sampling and nonprobability sampling. With probability sampling, a researcher can identify the probability of an element's being included in the sample. With non-probability sampling, there is no way of estimating the probability of an element's being included in a sample. If the researcher's interest is in generalizing the findings derived from the sample to the general population, then probability sampling is far more useful and precise.

Unfortunately, it is also much more difficult and expensive than nonprobability sampling. Probability sampling is also referred to as random sampling or representative sampling. The word random describes the procedure used to select elements (participants, cars, test items) from a population.

When random sampling is used, each element in the population has an equal chance of being selected (simple random sampling) or a known probability of being selected (stratified random sampling). The sample is referred to as representative because the characteristics of a properly drawn sample represent the parent population in all ways.

3.6 DATA ANALYSIS METHOD

These are the processes on the run during the execution of this design project:

1) Having a discussion with our supervisor

We had discussion with our supervisor about the design project. At the same time, we get a lot of ideas until after a week later we decided to design a desk that has many functions and benefits for people especially students and office workers.

2) Searching information / researches for the design project

As we doing our project and proposal, the information and researches that has been collected are from website, journals and patents. Other than that, we also used Google Form as our additional collect information. We asked students and office workers to answer the questions about this design desk project. From this collect information, it helps us to carry out this study and project.

3) Questionnaire

Questionnaire is created by using Google form to provide students and office workers especially from Politeknik Sultan Salahuddin Abdul Aziz Shah, Shah Alam students and the communities because feedbacks, comments and problems are needed to help improve the benefits of the project. On the next page is the sample of the questionnaire.

PORTABLE i-DESK

1. 1 . Gender

Mark only one oval.

- Female
- Male

2. 2) Age

Mark only one oval.

- 12-17 years old
- 18-25 years old
- 26 years old and above

3. 3) Your occupancy is *Mark only one oval.*

- Student
- Office worker

4. 4) The uses of desk is very important in our daily work *Mark only one oval.*

- Yes
- No

5. 5) The desk should be innovated to more modern style with daily electricity supply *Mark only one oval.*

- Yes
- No

6. 6) Is this portable desk is very suitable for users when they use laptop while completing their works? *Mark only one oval.*

- Yes
- No

Powered by
Google Forms

3.7 CHAPTER SUMMARY

This chapter focused on the methodology that was used in this study. An explanation of qualitative research as a method for data collection and analysis was given. Measures followed during the data collection were discussed in this chapter and the information about the sample was provided.

The conclusion that I obtained from this chapter is that I understand more about this design project as I do a lot of research about this project and searching information from resources such as websites, journals and articles.

From chapter 1 and chapter 2, information about existing desks were being searched to get ideas for this project and comparison is made. In this chapter is also about the methods on how
to make the desk project.

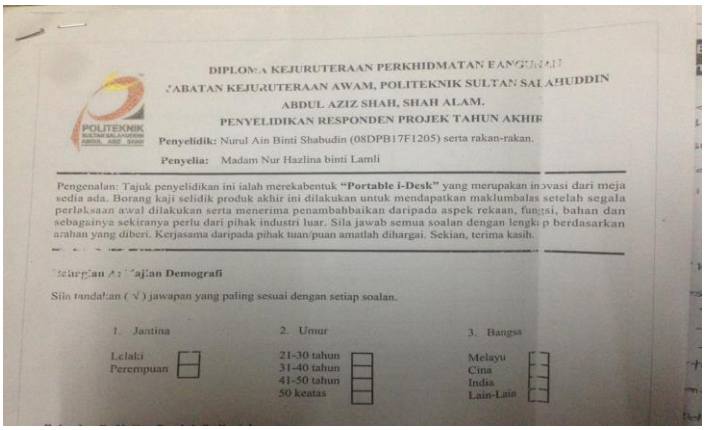
Last but not least, I would like to mention about the teamwork in our group is all good as we submit our works on time. And do not forget to thank all who help especially our parents, friends, lecturers, societies, and our partners in completing this project from the beginning of the plan to the completion of this final project. Millions of gratitude thank you to Allah SWT as well as to launch all these plans and be given good health to prepare them in due course.

CHAPTER 4

RESULTS

4.1 INTRODUCTION

This chapter describes in detail the findings and analysis of data that was conducted on 67 respondents. The data of this study has been analyzed by using questionnaire for Portable i-Desk. The questionnaire was divided into three (3) sections, Part A, B, C and D which brought the total number of nineteen (19) questions. There are two methods used to analyze the data by visualizing pie charts and percentages. These data were then analyzed for formulation. The statistics obtained reflect the satisfying level of respondents with the Portable i-Desk improvement.



DIPLOMA KEJURUTERAAN PERKHIDMATAN [illegible]
JABATAN KEJURUTERAAN AWAM, POLITEKNIK SULTAN SALAHUDDIN ABDUL AZIZ SHAH, SHAH ALAM.
PENYELIDIKAN RESPONDEN PROJEK TAHUN AKHIR

Penyelidik: Nurul Ain Binti Shabudin (08DPB17F1205) serta rakan-rakan.

Penyelia: Madam Nur Hazlina binti Lamli

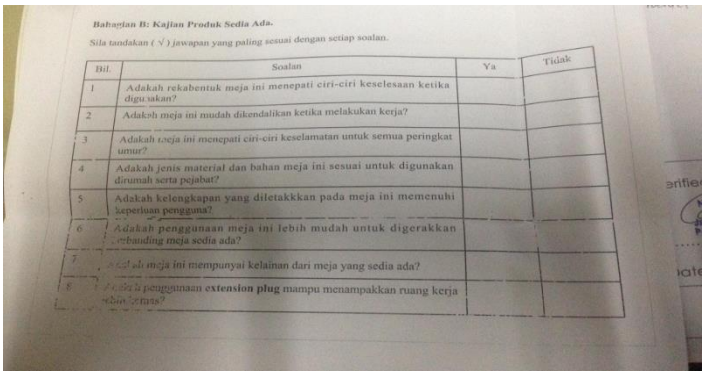
Pengenalan: Tajuk penyelidikan ini ialah merekabentuk **"Portable i-Desk"** yang merupakan inovasi dari meja sedia ada. Borang kaji selidik produk akhir ini dilakukan untuk mendapatkan maklumbalas setelah segala perlaksaan awal dilakukan serta menerima penambahbaikan daripada aspek rekaan, fungsi, bahan dan sebagainya sekiranya perlu dari pihak industri luar. Sila jawab semua soalan dengan lengkap berdasarkan arahan yang diberi. Kerjasama daripada pihak tuan/puan amatlah dihargai. Sekian, terima kasih.

Bahagian A : Kajian Demografi

Sila tandakan (√) jawapan yang paling sesuai dengan setiap soalan.

1. Jantina: Lelaki ☐ Perempuan ☐
2. Umur: 21-30 tahun ☐ 31-40 tahun ☐ 41-50 tahun ☐ 50 keatas ☐
3. Bangsa: Melayu ☐ Cina ☐ India ☐ Lain-Lain ☐

Figure 20 shows Part A

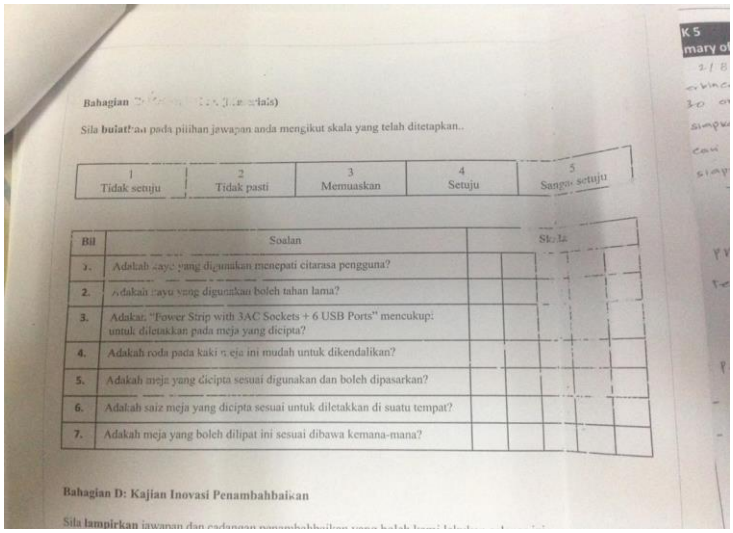


Bahagian B: Kajian Produk Sedia Ada.

Sila tandakan (√) jawapan yang paling sesuai dengan setiap soalan.

Bil.	Soalan	Ya	Tidak
1	Adakah rekabentuk meja ini menepati ciri-ciri keselesaan ketika digunakan?		
2	Adakah meja ini mudah dikendalikan ketika melakukan kerja?		
3	Adakah meja ini menepati ciri-ciri keselamatan untuk semua peringkat umur?		
4	Adakah jenis material dan bahan meja ini sesuai untuk digunakan dirumah serta pejabat?		
5	Adakah kelengkapan yang diletakkkan pada meja ini memenuhi keperluan pengguna?		
6	Adakah penggunaan meja ini lebih mudah untuk digerakkan berbanding meja sedia ada?		
7	Adakah meja ini mempunyai kelainan dari meja yang sedia ada?		
8	Adakah penggunaan **extension plug** mampu menampakkan ruang kerja lebih kemas?		

Figure 21 shows Part B



Bahagian

Sila **buat**kan pada pilihan jawapan anda mengikut skala yang telah ditetapkan..

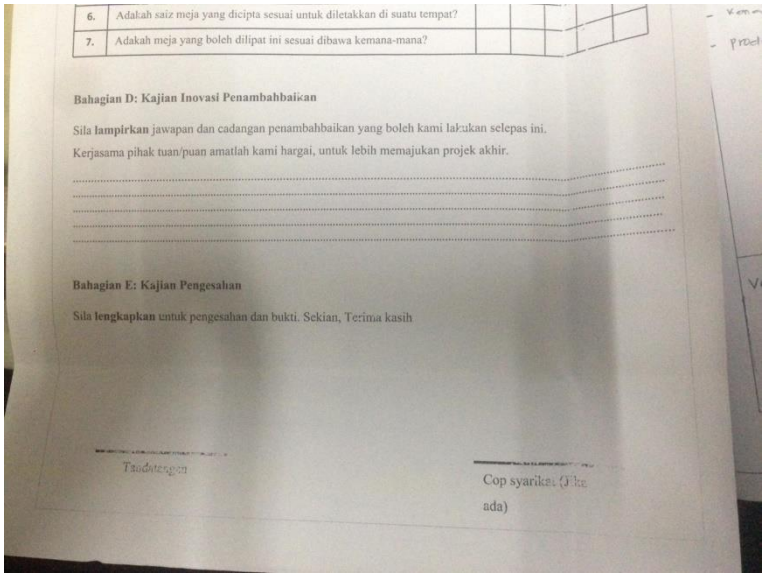
1	2	3	4	5
Tidak setuju	Tidak pasti	Memuaskan	Setuju	Sangat setuju

Bil	Soalan	Skala
1.	Adakah kayu yang digunakan menepati citarasa pengguna?	
2.	Adakah kayu yang digunakan boleh tahan lama?	
3.	Adakah "Power Strip with 3AC Sockets + 6 USB Ports" mencukupi untuk diletakkan pada meja yang dicipta?	
4.	Adakah roda pada kaki meja ini mudah untuk dikendalikan?	
5.	Adakah meja yang dicipta sesuai digunakan dan boleh dipasarkan?	
6.	Adakah saiz meja yang dicipta sesuai untuk diletakkan di suatu tempat?	
7.	Adakah meja yang boleh dilipat ini sesuai dibawa kemana-mana?	

Bahagian D: Kajian Inovasi Penambahbaikan

Sila **lampirkan** jawapan dan cadangan penambahbaikan yang boleh kami lakukan selepas ini.

Figure 22 shows Part C



6.	Adakah saiz meja yang dicipta sesuai untuk diletakkan di suatu tempat?					
7.	Adakah meja yang boleh dilipat ini sesuai dibawa kemana-mana?					

Bahagian D: Kajian Inovasi Penambahbaikan

Sila **lampirkan** jawapan dan cadangan penambahbaikan yang boleh kami lakukan selepas ini.
Kerjasama pihak tuan/puan amatlah kami hargai, untuk lebih memajukan projek akhir.

.....

.....

.....

.....

.....

Bahagian E: Kajian Pengesahan

Sila **lengkapkan** untuk pengesahan dan bukti. Sekian, Terima kasih

Tandatangan

Cop syarikat (Jika ada)

Figure 23 shows Part D

4.2 ANALYSIS AND DESCRIPTIVE DATA FINDING

4.2.1 PALLET WOOD

Figure 24 shows pallet wood

Portable i-desk is made from pallet wood that goes through various processes to look neat and antique. The testing we had studied that this desk can handle standard 15-20kg.

4.2.2 PLASTIC DESK

Figure 25 shows plastic desk

Plastic desk is used everywhere or public because it is very light and suitable to use anywhere. The standard load of plastic desk is 15-20kg.

4.2.3 *BEROTI* WOOD

Figure 26 shows beroti wood

This type of wood also often used to make desks such as those used by lecturers or teachers in schools. This desk can carry load within 50kg.

4.3 ANALYSIS AND DATA FINDING EMPIRICAL

4.3.1 PIE CHART OF GENDER AND AGE

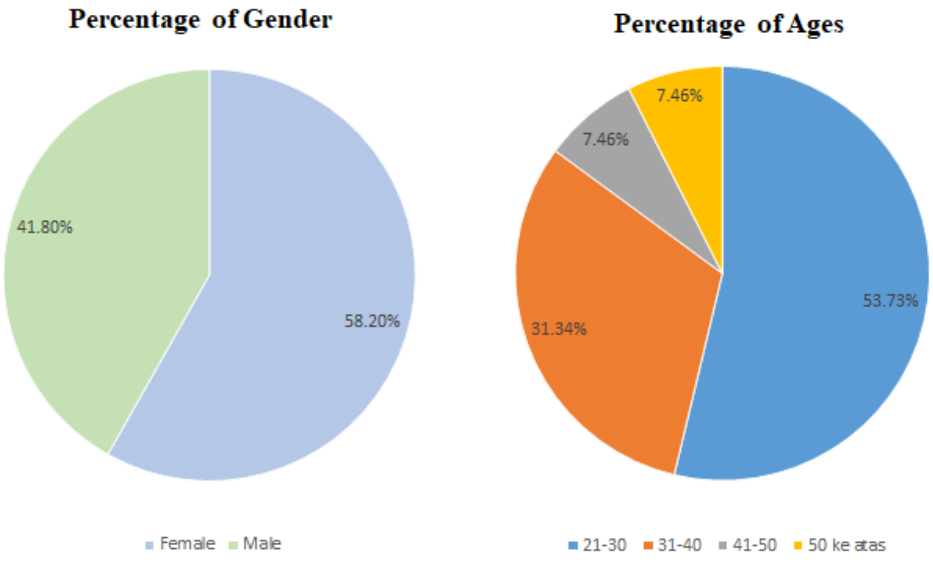


Table 1 shows Percentage of respondents by gender and age

The pie chart above shows the percentage of respondents by gender and age. The results showed that 41.80% of the respondents were men with 28, while the proportion for women respondents was 58.20% with 39 persons. For the age group, 55.73% belonged to the age group of 21-30, which is 37 people. In the 41-50 age group, the percentage achieved was 7.46% of 5 people. While for the 50 and above percent achieved 7.46% which is 5 people.

4.3.2 PIE CHART SCOPE OF PREVILLAGE

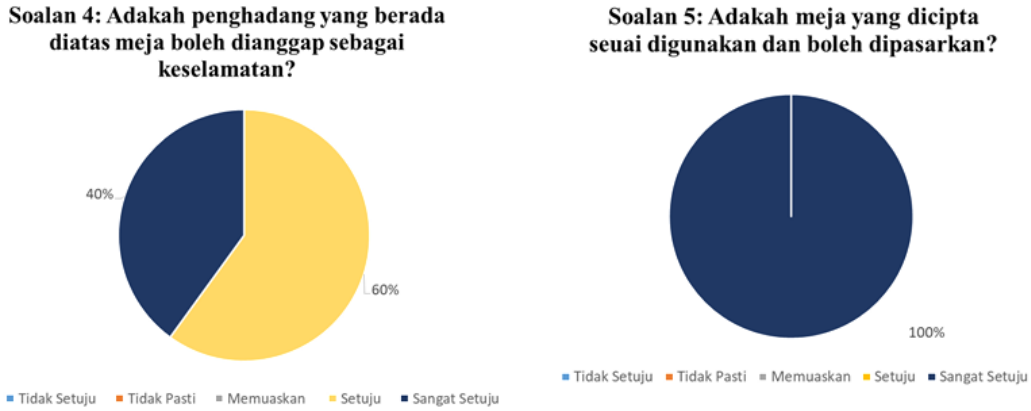
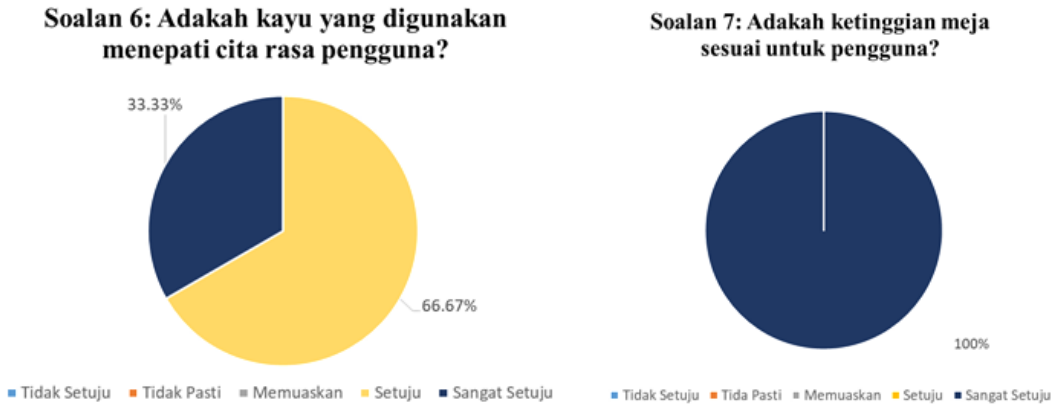


Table 2 shows pie chart of privilege



The pie chart above shows the percentage based on the scope of each person. The above chart shows the percentage for the scope of privileges granted to 15 respondents. For the first question percent of the most agreeable is 100% and it is the same For the second question of 66.67% have given the answer yes while the percent for the most agree answer is 33.33%. The third question is a 100% answered answer to 100% for a strongly agreeable answer. Strongly agree. Then for the sixth question respondents answered yes and strongly agree with 33.33% who answered strongly while those who answered agreed with 66.67%. For the last question, the seventh question answered 100% with the most agreeable answer.

4.3.3 PIE CHART SCOPE OF DESIGN

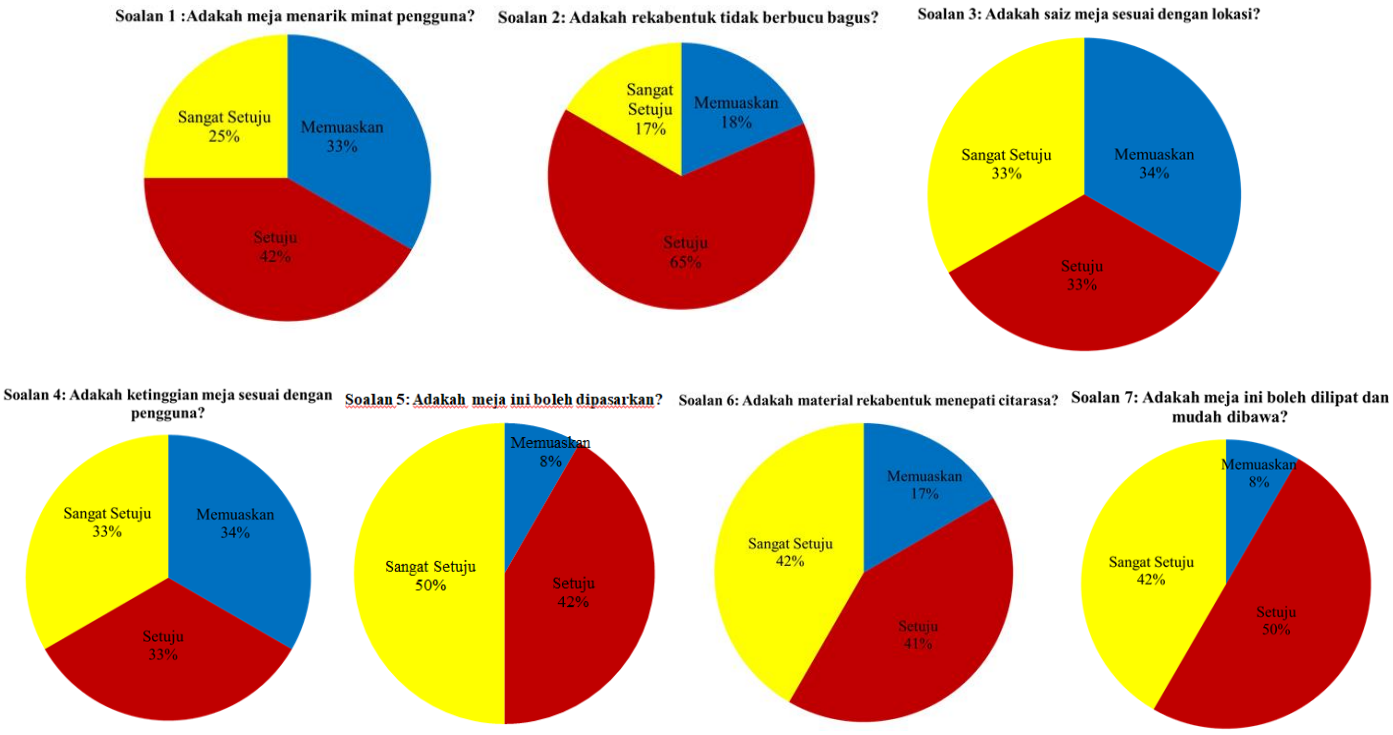


Table 3 shows pie chart scope of design

The pie chart above shows percentages based on the design scope. There were 12 respondents who answered this question. The first percent said 25% of the respondents agreed, 33% answered satisfactorily and 42% answered yes found that 65% .On the third question, most respondents gave a very agreeable, satisfactory and agreeable answer. The percentage for this answer was 33% for agreeing, 34% for agreeing and 33% for agreeing. For the fourth question the percentage for this question is the same as the percentage for the third question of which 33% agree, 34% agree and 33% answer yes. Who answered satisfactorily and 42% of respondents agreed. For the top six percent the most favorable answers were 42%, the

second highest answers were 41% and the most satisfactory answers were 17%. Finally for the seventh question, the percentage of respondents who answered strongly was 42%, while those who answered satisfied 8% and 50% of those who answered strongly.

4.3.4 PIE CHART SCOPE OF MATERIALS

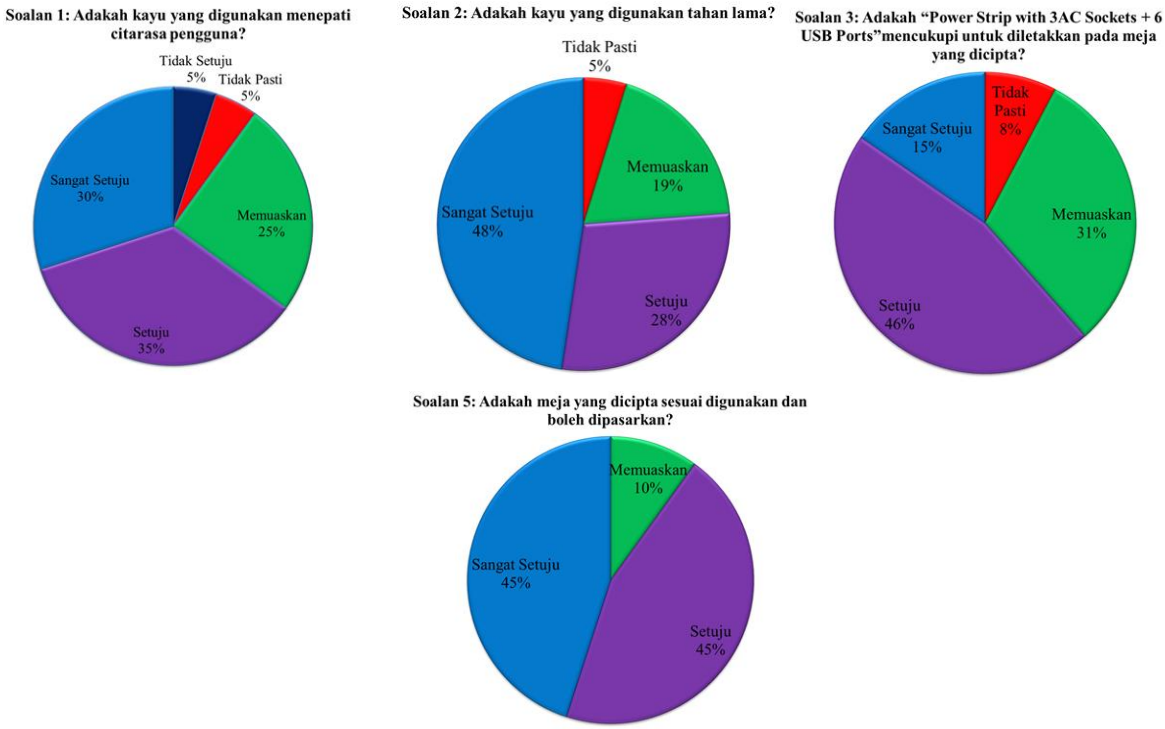
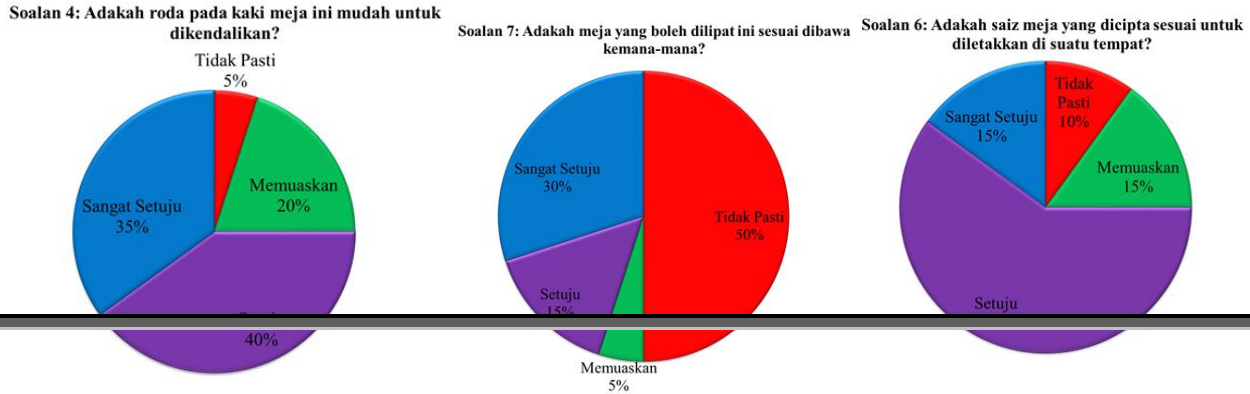


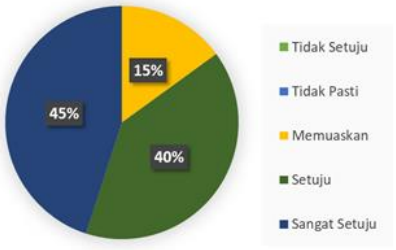
Table 4 shows pie chart scope of materials



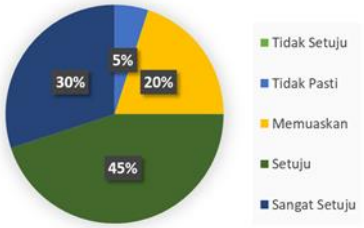
The pie chart shows percentages based on the scope of the material. A total of 20 respondents answered. For the first question there were 35% for the respondent agree while 25% for the satisfied respondent and 30% for the respondent strongly agree then the percentage for the disagree and uncertain answer was 5%. Respondent strongly agreed was 48% then respondent agreed 28 %% while satisfactory respondent was 19% and 5% respondent were unsure. For the third question, 46% answered yes and 15% answered yes and 31% answered yes and 8% answered no. Then fourth question answered yes 40% followed by the answer to strongly agree 35% then the answer to satisfaction of 20% and uncertainty to 5% .For the fifth question percent of respondents who agree and strongly agree are equal to 45% and 10% of those who answer satisfactorily. Next, the highest six percent of the answers were 60% and then the most agreeable and satisfactory answers were the same 15% and 10% for the uncertain answer. Which is 50% followed by strongly agree which is 30% then the answer to agree is 15% and satisfies 5%

4.3.5 PIE CHART SCOPE OF TARGET MARKETING

Soalan 1: Adakah meja yang dicipta seuai digunakan dan boleh dipasarkan?

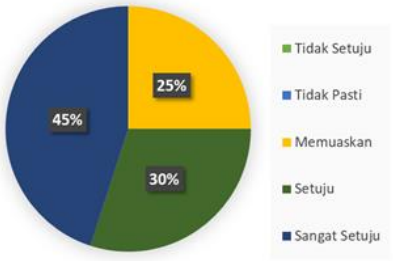


Soalan 2: Adakah meja ini sesuai digunakan di tempat awam seperti masjid dan prepustakaan?

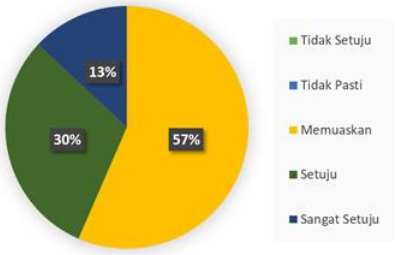


Soalan 3: Adakah pengguna selesa menggunakan meja ini?

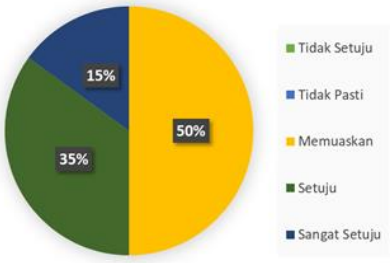
Soalan 4: Adakah meja ini sesuai digunakan untuk menyiapkan kerja rumah?



Soalan 5: Adakah saiz meja yang dicipta sesuai untuk diletakkan di suatu tempat?



Soalan 6: Adakah kayu yang digunakan menepati cita rasa pengguna?



Soalan 7: Adakah meja yang boleh dilipat ini sesuai dibawa kemana-mana?

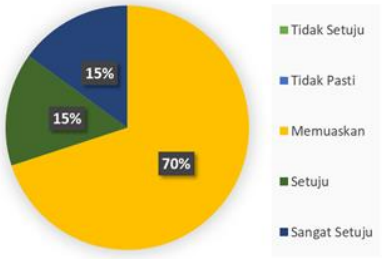


Table 5 shows pie chart scope of target marketing

47

The pie chart shows the percentage based on the target marketing scope. Of the 20 respondents who answered this question, 45% of respondents answered yes while 40% said yes and 15% answered yes. Then for the second question, there were 4 answers given by the respondents which were 5% uncertain, satisfactory 30%, for 30% and 45% answered yes. Agree is equal to 30% while those who answer satisfactorily are 35% and those who answer are uncertain 5%. For the fourth question, the highest percentage was 45%, the second highest answer was 30% and 25% were satisfactory. % while the percentage of respondents agree is 30% and those who agree strongly agree is 13%. Next for the sixth question the highest percentages are those who answer satisfactorily by 50%, while those who agree percentages have reached 35% and 15% for those who answer satisfactorily. Finally, for the seven percent questionnaire the most agree and agree is 15% and the satisfactory answer is 70%.

4.4 CONCLUSION

In conclusion, we have described in detail the findings of the study based on the research instrument used in the implementation of this study. The instruments of the study were respondents' questionnaires and interviews with target marketing users. This discussion and analysis of data provides in-depth explanation of the use of Portable i-Desk. In addition, data analysis also focus on issues, scope of research and objectives of portable i-desk.

CHAPTER 5

DISCUSSION & CONCLUSIONS

5.1 INTRODUCION

This chapter is the final chapter in this study and it will be discussed in general more in depth about the results of the study analyzed in chapter 4. These findings are supported by opinions that strengthen the research findings and are based on discussion of the findings obtained by several suggestions further study will be done later.

5.2 DISCUSSION

This section discusses the results of the research that are drawn from the analysis of the research done and concludes the results of this study.

5.2.1 TYPES OF WOOD

The research found that pallet wood with good quality is suitable for use as a study desk because it has patterns on it that attracts users.

5.2.2 DESK POWER OUTLETS

The results show that having desk power outlets can make it easier for users to charge laptops or mobile phones at portable i-desk.

5.2.3 FORDABLE DESK

The research found that the desk can be folded to make it easier for the users to keep or carry it anywhere. This desk can be locked below the legs of the desk as it has wheels for the desk to move.

5.3 SUGGESTION

Through the results of this study, we have emphasized the use of portable i-desk to the general public some suggestions have been made for the improvement of this desk in the future the suggestions received are as follows.

5.3.1 THE FIRST SUGGESTION IS IN TERMS OF SIZE

Some respondents suggested that the size of the desk should be smaller so that it would be easier to put the desk in a car with 4 seats. Others suggested that the wheel size be slightly increased to suit the size of the desk.

5.3.2 THE SECOND SUGGESTION IS TO USE A LIGHTER QUALITY WOOD

This makes the table easy to carry around and makes it easy for users to use the desk so that the cost for the desk will be at low cost.

5.3.3 THE THIRD SUGGESTION IS THE DESK SHOULD HAVE AN ADJUSTABLE

Ergonomics of the users is important when using the desk especially for users doing their works and studying.

5.3.4 THE FOURTH SUGGESTION IS CUSTOMIZE THE DESK

The design, colour, and types of wood need to customize so the users interest to use the portable i-desk.

5.4 CONCLUSION

This chapter discusses the findings of the report study and its relevance in addressing the objectives of the study outlined. Discussions have also been made about the comparison of studies created with previous literature studies. Recommendations have also been made to improve this portable i-desk. Through the discussions and suggestions made the conclusions of the study resolved.

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CHAPTER 3 METODOLOGY

Metodology meaning and definition

https://www.google.com.my/search?source=hp&ei=AoelXKSNG427rQHa5r_YDQ&q=methodology+definition&oq=METODOLOGY&gs_l=psy-ab.1.3.0i10i203l2j0j0i10i203l6j0i10i30.1270.4227..8216...0.0..0.290.1744.1j7j3.....0....1..gws-wiz.....0..35i39j0i131j0i67j0i203.nUlBHo_2P_s

What is Metodology

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CHAPTER 4 RESULTS

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CHAPTER 5 DISCUSSION & CONCLUSIONS

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APPENDIX

A.GANTT CHART

B. QUESTIONNAIRES

C. PROJECT COST

\ NO.	MATERIAL	QUANTITY	COST PER UNIT (RM)	ACTUAL COST
1.	3AC SOCKETS + 6 USB PORTS	1	60	60

2.	WIRE VACUUM	1	20	30
3.	PALLET WOOD(55x140x77)	1	700	700
4.	LOCKED WHEEL	4	25	100
5.	HINGES	4	5	20
6.	WOOD VARNISH	2	50	100
7.	WOOD GLUE	3	35	105
8.	PREVILLAGE	-	-	200
			TOTAL	RM 1315

Table 5 shows the costing

D. DRAWING

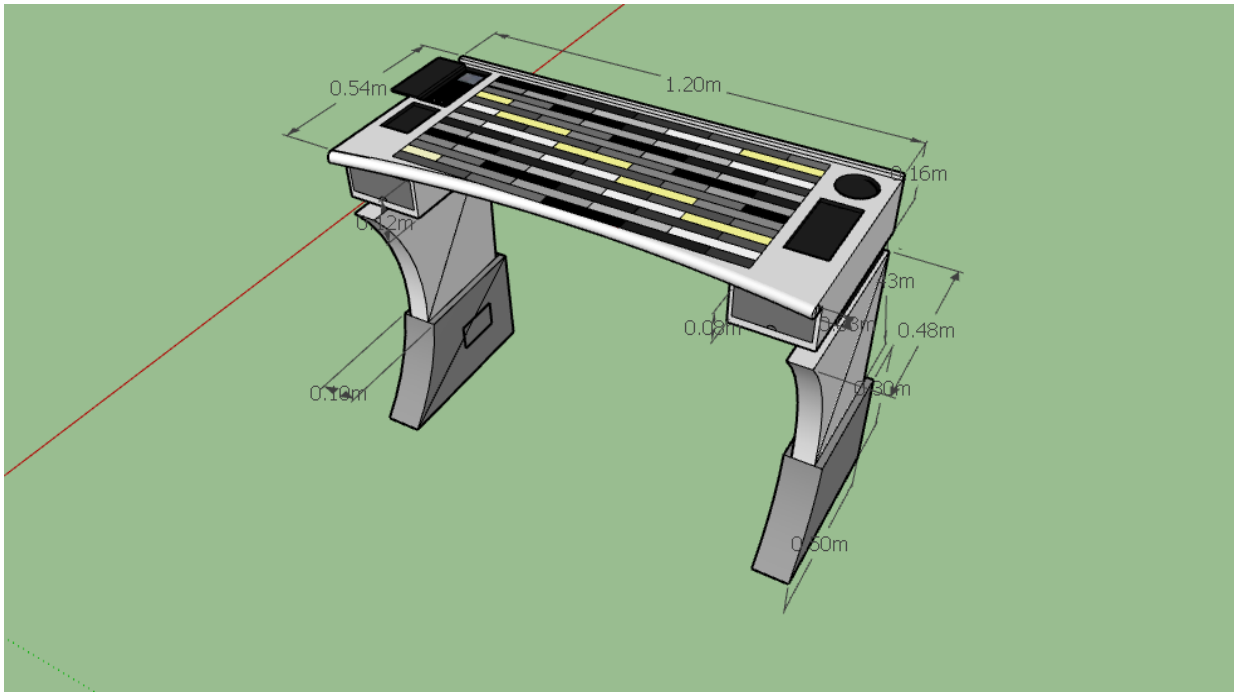

Figure 27 shows first design of the project before updating features

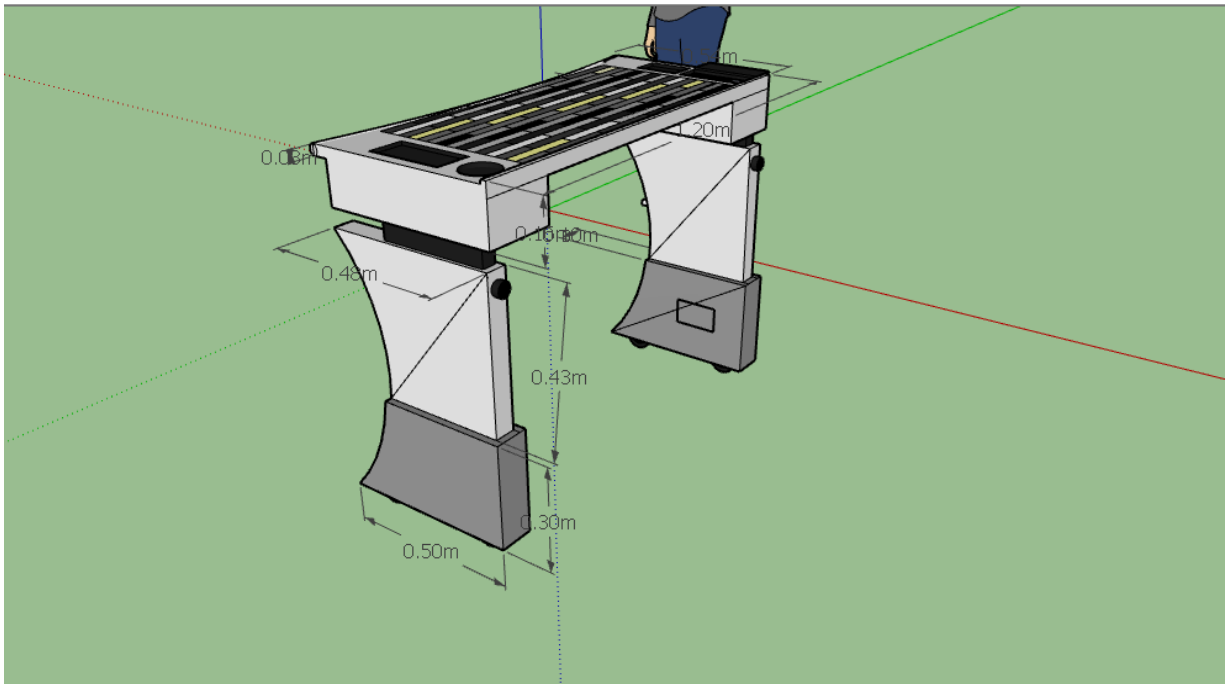

Figure 28 shows the latest design of project which is more feature and aesthetic

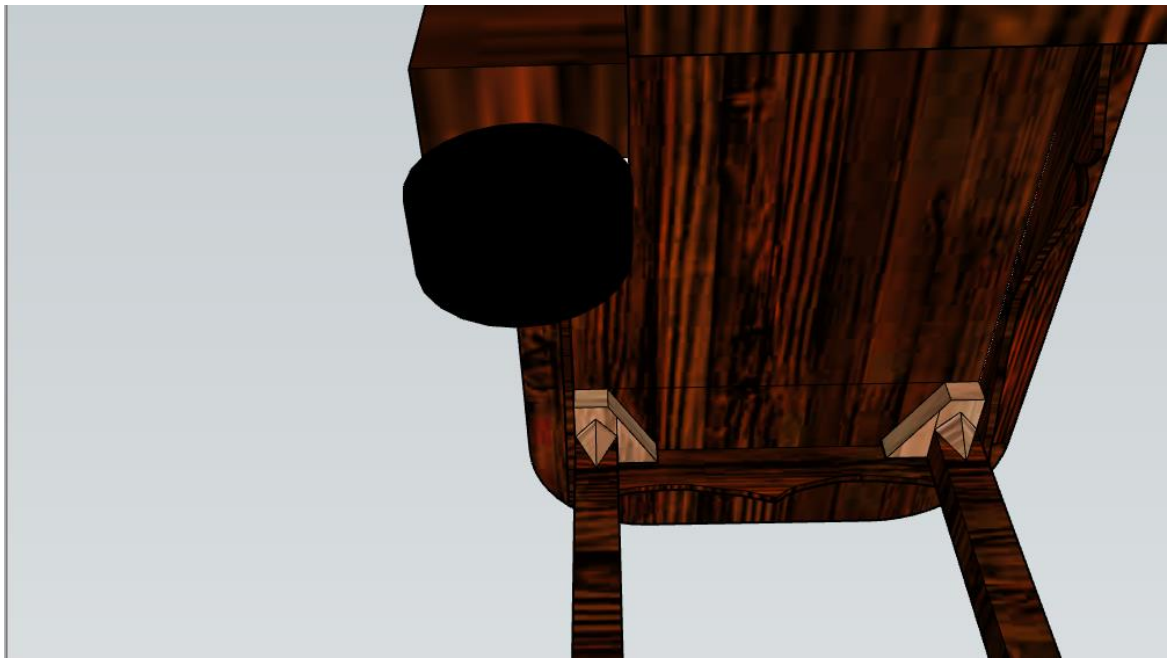

Figure 29 shows full design of Portable i-Desk

THANKS

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