



KEMENTERIAN PENGAJIAN TINGGI



LAPORAN INOVASI PITEK SESI JUN2020

UNIT PENYELIDIKAN DAN INOVASI

TAJUK PROJEK: PORTABLE AUTO HAND SAW

JABATAN: KEJURUTERAAN MEKANIKAL

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**Laporan ini dikemukakan kepada Jabatan Kejuruteraan Mekanikal
sebagai memenuhi sebahagian syarat penganugerahan Diploma
Kejuruteraan Mekanikal**

JABATAN KEJURUTERAAN MEKANIKAL

JUN 2020

AKUAN KEASLIAN DAN HAK MILIK

TAJUK : PORTABLE AUTO HAND SAW

SESI : JUNE 2020

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2. Kami mengakui bahawa “Projek tersebut di atas’ 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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ACKNOWLEDGEMENT

Alhamdulillah , In the name of Allah the most gracious and the most precious, first and foremost , I would like extend our deepest praise to Allah SWT who given us the patient , strength , determination, obstacle that helping us to think wisely in making a decision and courage to completed this project .Plus , many thanks and highest gratitude to puan nazratulhuda binti awang@hashim , our supervisor , which helps , lead and guides us with our project “PORTABLE AUTO HAND SAW” .

ABSTRAK

Hand saws are often used in manufacturing. However, it is customary to cut something large or small. Furthermore, with the new era there are modern hand saws. One of the problems we often see is that the saw's eye on the saw is easily bent when we push the saw out loud. In addition, when used regularly it can become heated and can cause the material to break down easily. When the material has been damaged then the project to produce the project has become inaccurate. Alternatively, for a machine saw it costs a very high cost. Which can reach hundreds of thousands or tens of thousands. That way, traders need a very high capital to buy it. This is because the material is very expensive and powerful and therefore the price on the machine is very expensive. After that, when the saw machine is damaged it will require very high cost to repair it. Besides that, it also needs to operate its motor by changing its motor oil every month to operate the motor properly so that the motor on the saw machine does not cause damage. The objective of this project was created to design a portable automatic cutting tool, to make safety cutting tools and to analyze personal safety factors while doing cutting work. The method we used to test our project was to use a small piece of iron to cut. It can be done automatically. Then, we test the speed of the motor and calculate how long it takes to cut the material. The results of our project found that this portable automatic cutting tool is suitable for use by adult, workshop workers and small workshop in our tool it is safe to use because because the saw blades that have speed during cutting are protected by the surface side of the project. This reduces the high risk to consumers when cutting work compared to the usual saws we use does not guarantee safety because the saw blades are too exposed to the user. Next, we found that the security features on our device are also safe while making work. The disadvantage of this project is that it still uses manpower to do cutting work. Therefore, there are improvements, among others, is to supply IOT to the project. In this case, the work done only uses a connection to a device such as a telephone to move the work done.

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CHAPTER 1

INTRODUCTION

1.1 RESEARCH BACKGROUND

First saws known in history were serrated flint, seashells or obsidian. First metal-bladed, open saws were made by ancient Egyptians in around 3000 BC. They were made of copper. According to tomb wall illustrations and discovery of copper-bladed saws from the tombs, the Egyptian saws were at first serrated and hardened copper which cut on both pull and push strokes. Later the Egyptian saw developed, and it got raked teeth and one-sided set. That saw was used with the push stroke. When the skills of the metallurgy progressed, the saws were first made with a bronze and later with iron. With iron, it was possible to make thin and narrow blades that were kept under tension. In the iron-age, first frame saws were developed for these narrow iron blades. The invention of the steel was the last and most important step for the hand tool makers. The cutting tool made of steel is far superior in durability and its ability to hold a sharp edge for a long time. Before the electricity and combustion engines, lumberjacks, carpenters, boat builders and cabinet makers used the hand powered saws for every task. There were water-powered sawmills but they were scarce. Handsaw was used everywhere. Lumberjacks used two-man crosscuts saws to fell trees. Two-man pitsaws were used to saw logs to boards. Basic shaping and fitting were done using open handsaws and its specialist versions; keyhole, compass and tenon saws. Frame and bow saws were also preferred in some regions for the same basic shaping and fitting task. All the old handsaws were sharpened by hand. The basics of sharpening and setting the blade were among the first skills learned when starting as an apprentice. It was the most important skill for every artisan in trade. The table saws, chop saws, bandsaws, and chainsaws have largely replaced the need for some of the old types of handsaws. But for many tasks, there is still uses for handsaws for a modern carpenter, cabinetmaker, boat builder, luthier etc. Sometimes the handsaw is the most efficient choice for the job at hand.

WHAT IS A HANDSAW?

A handsaw is a hand tool for cutting wood or other materials. Usually, it consists of a steel blade with teeth grounded on one edge and a handle mounted at one end. They are operated by oscillating motion created by the user.

1.2 PROBLEM STATEMENT

Hand saws are often used in manufacturing. However, it is customary to cut something large or small. Furthermore, with the new era there are modern hand saws. One of the problems we often see is that the saw's eye on the saw is easily bent when we push the saw out loud. In addition, when used regularly it can become heated and can cause the material to break down easily. When the material has been damaged then the project to produce the project has become inaccurate. Alternatively, for a machine saw it costs a very high cost. which can reach hundreds of thousands or tens of thousands. That way, traders need a very high capital to buy it. This is because the material is very expensive and powerful and therefore the price on the machine is very expensive. In addition, when the saw machine is damaged it will require very high cost to repair it. In addition, it also needs to operate its motorcycle by changing its motor oil every month to operate the motor properly so that the motor on the saw machine does not cause damage.

1.3 RESEARCH OBJECTIVES

The objectives to this research are:

- i. To make the sleeve lightweight.
- ii. to develop a sleeve that doesn't use much manpower and to make it easier to cut materials.
- iii. To design something new that guarantees the safety of its use and easy to carry anywhere.

1.4 RESEARCH QUESTIONS

This study will answer the following research questions:

- i. Is it possible to create a portable auto handsaw that are high in quality?
- ii. What type of material that can be used to make portable auto handsaw cheaper?

1.5 SCOPE OF RESEARCH

The scope and limits to this research are:

- i. This product cannot to the job for to long because this battery need to charge.
- ii. It is possible to create high lightweight saws?
- iii. This product can only cut metal and wood
- iv. This product cannot be used in water
- v. Can only be use battery capacity around 12 voltage to 24 voltage.
- vi. cannot cut too much iron and too thick
- vii. the material cutting limit is the same as a normal saw
- viii. can only cut circle and rectangular shapes of iron or wood

1.6 SIGNIFICANCE OF RESEARCH

There are many automatic saws such as pneumatic saw, hydraulic saw and dc moto saw that are now used in Malaysia can work well and people are willing to pay a high price for it. However, some people with low income or small workshop workers cannot buy automatic saws worth RM 500 ++ and more. also the problem of material prices in Malaysia is increasing. Therefore, the findings of this study will bring many benefits to low-income people who cannot afford to buy expensive automatic saws. Furthermore, we use materials that are easy to find in Malaysia in case of damage. it also gives an advantage to Malaysia not to take spare parts abroad.

1.7 DEFINITION OF OPERATIONAL TERMS

- i. Wood : a type of material that can be found in stores anywhere in Malaysia
- ii. saw blades : saw blades are simple and available in hardware in Malaysia.
- iii. Dc moto : Moto DC is any class of rotating electric motor that converts direct current electrical energy into mechanical energy and must use 24 v energy.
- iv. Battery : can use any battery and has 12-24v energy

1.8 CHAPTER'S SUMMARY

In this chapter, the studies were explained about its origin of ideas and inspirations. All the objectives were made out of all the problem statements. The objective for this project along with the importance will that will be cheap and light causing it to be more convenient for and even the scope of this project only . Thus, this new product could be used for daily routine with a really good care for a longer lifetime.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter discusses previous research. Literature review is a literature search and evaluation that is available in the selected subject area or topic. It is a state of the art document about a topic or topic that is written. We conducted the study by visiting the workshop to see how much time it took to cut the iron and to see what other problems they might be facing. we also do questionnaires to people in some workshops that use hand saws to get their feedback. we also did a study on handsaw that was invented 10 years ago.

2010 -2011

This iron saw is used for cutting iron only. Initially an iron saw is created on the handle and connects directly to the tool eye. Therefore, the work is fully done by the holder. This results in more work being done by users who use it more.



Figure 2.2.1

2012 -2013

In addition, the design of this iron saw is easier to use by the user with the frame on the iron saw. This is why, users who use this iron saw can easily use this saw.



Figure 2.2.2

2014 -:

In addition, there are designs that have been designed. This is because they want to make it easy for users. Later, the design of the saw was created using steel on the handle and frame. Work is easy because the user can hold on this saw. Also with the user frame easy to set on the surface to be cut by holding this iron sawframe pad .



Figure 2.2.3

2015:

Furthermore, in this design the toolbar is too long to have no problems when mounted on the saw. This is because, on the middle surface of the tool's eye there is a knot to prevent the tool's eye from getting out of work.



Figure 2.2.4

2016:

In addition, the new steel saw design has been redesigned. This is because they want to make it easier for the users of this saw. The design of the iron saw does not change much with the previous design. On this saw there is an easy handle for the user to use as well as reducing the energy of the user. In addition, this iron saw is easy to adjust using nuts to tighten and loosen tool points. In addition, the adjusters can only be adjusted with the tool points of any size or size on the iron saw.



Figure 2.2.5

2017 -2018:

As a result, in the last 10 years there have been various designs. This is because, design is very important in marketing a product. Therefore, this iron saw adds some usefulness to the saw by creating adjustable joints. These adjustable joints are used to extend the frame according to the length of the saw. This is because, there are chainsaws that are too long and may not be suitable for saws that have a shorter frame than the saw.



Figure 2.2.6

2019-2020:

At this iron saw there is not much change. Therefore, the design is only modified on the iron saws. This is because some users find it difficult to use them when doing cutting work. With this handle design the user is comfortable using it with a finger pattern on the handle. This makes the user feel sluggish to hold on to the handle.



Figure 2.2.7

SAW BLADE

CHANGE THE TOOL SAW BLADE IN 5 YEARS:

The saws are divided into 2 namely wood saws and steel saws



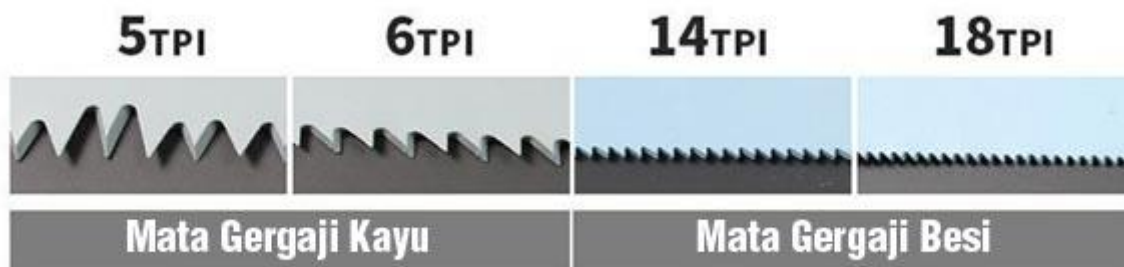
Wood saws



steel saws

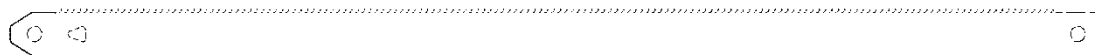
SAW SIZE DIFFERENCE:

Wooden sawing teeth are less prone to teeth than close-knit iron saws.



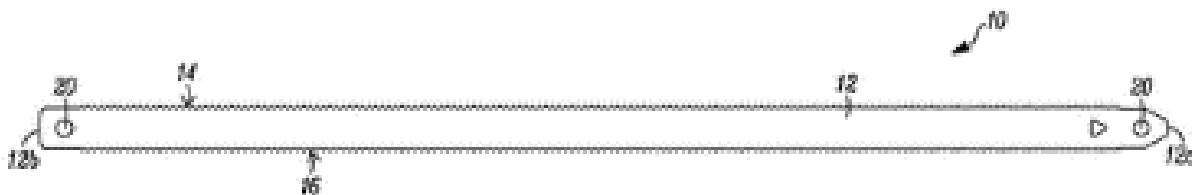
2012-2015

This year, the Hacksaw blade was redesigned by the Irwin Industrial Tool Company.



2016-2017

This year, the Hacksaw blade was improved by the Irwin Industrial Tool Company. Where this company is, has created a two-sided blade on the hacksaw blade.



DESIRE IN USE

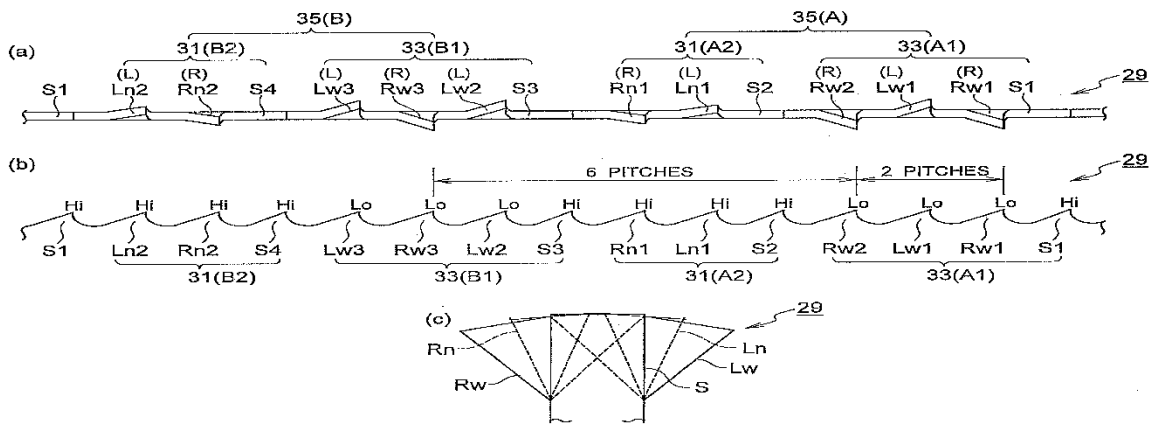
Typical prior art hack saw blades include a blade body having a single cutting edge defined by a plurality of teeth axially spaced relative to each other along one side of the blade body, and a non-working edge formed on an opposite side of the blade body relative to the cutting edge. Because typical prior art hack saw blades include only a single cutting edge, fundamental limitations persist. The single cutting edge can wear out, or wear out quicker than desired, or even fracture, thereby requiring disposal of the entire blade. The cost of manufacture and materials may also be unnecessarily high for only a single cutting edge.

TWO-HANDED HACK HACK LOOKS AT BLADES CONSISTING OF:

Where the first set of teeth and the second set of teeth determine the magnitude of the maximal set equal to each other and are perpendicular to the point or location along the length of the blade relative to the reference point.

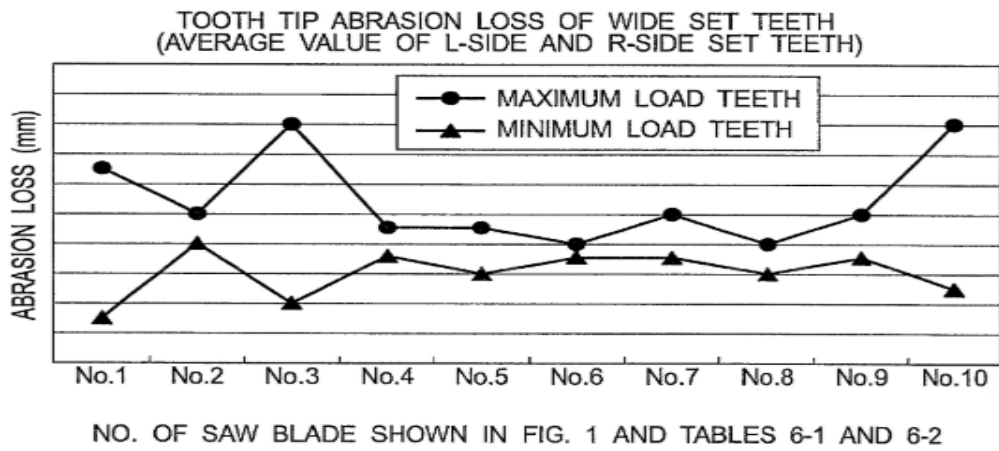
SAWS BLADE FOR ARRANGING SAW TEETH

Saw blade and method for arranging saw teeth has been introduced by Amada Company, Limited. Publication date at 2015. widely used for cutting metal work. As a cutting tool for saws, Bi-Metal blades are used by attaching teeth made of high-speed steel, carbide cement and then to the blade body made of high ductile spring steel. The figure below shows the distance between the saws.



The

diagram below shows the graph of the distance between the saws:



This graph shows the amount of power the saw can cut by the distance and size of the saw.

2.3 METHODS OF MAKING PORTABLE AUTO HAND SAW

Method of making a portable automatic handsaw by measuring the wood to be used. Then cut it according to the size so that it looks neat and beautiful. After measuring the wood, glue the wood so that it looks like a saw cutting tool. After fastening, attach the mc dc to the back and tighten it using screws so that it is in a vertical position. Next, tighten both sides of the saw blade so that when it moves it is not easily removed, the next method is to make a way to place the wire on top of the wood so that it looks neat and make a special order of the switch so that it looks good. When done, connect the wires to the mc dc and to the battery. And last but not least, the sack test is either good or bad.

The Advantages of using DC moto:

- **Speed control over a wide range both above and below the rated speed:** The attractive feature of the dc motor is that it offers the wide range of speed control both above and below the rated speeds. This can be achieved in dc shunt motors by methods such as armature control method and field control method. This is one of the main applications in which dc motors are widely used in fine speed applications such as in rolling mills and in paper mills.
- **High starting torque:** dc series motors are termed as best suited drives for electrical traction applications used for driving heavy loads in starting conditions. DC series motors will have a starting torque as high as 500% compared to normal operating torque. Therefore dc series motors are used in the applications such as in electric trains and cranes.
- **Accurate steep less speed with constant torque:** Constant torque drives is one such the drives will have motor shaft torque constant over a given speed range. In such drives shaft power varies with speed.
- Quick starting, stopping, reversing and acceleration
- Free from harmonics, reactive power consumption and many factors which makes dc motors more advantageous compared to ac induction motors.
- Torque and speed are easy to operate.
- Does not produce strong sound energy during the process.

The Disadvantages of using DC moto:

- High initial cost
- Increased operation and maintenance cost due to the presence of commutator and brush gear.
- Cannot operate in explosive and hazard conditions due to sparking occur at brush (risk in commutation failure)
- Not suitable for very large power applications.

2.4 CHAPTER'S SUMMARY

the studies were explained about how to choose a very convenient saw to use. In addition, users can also choose the chainsaw according to their comfort and convenience. In addition, the user will be able to identify the type of saw with the object to be cut. In addition, users will be able to find out why saws are created to have distances between saws.

As to conclude this chapter, literature review is important to showcase all the studies of materials and methods to enhance the knowledge on this project. Every and others projects that are related to this is really helpful especially for us to understand it fully.

After a lot of materials and methods were discussed and researches were done, the materials that are the most compatible for our project dc motor

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

In this chapter, there will be a lot of information about the process and journey through out the making of our final project. There will be flow chart showing the process of us making the whole project. This flow chart will explain the processes we took. various process needs to be done according to proper procedures to ensure that projects do not have any problems. Next, is the Gantt Chart, which will show the actual and planning throughout all the 13 weeks of our final year project journey. Among the measures the done in preparing this project are.

3.2 FLOW CHART

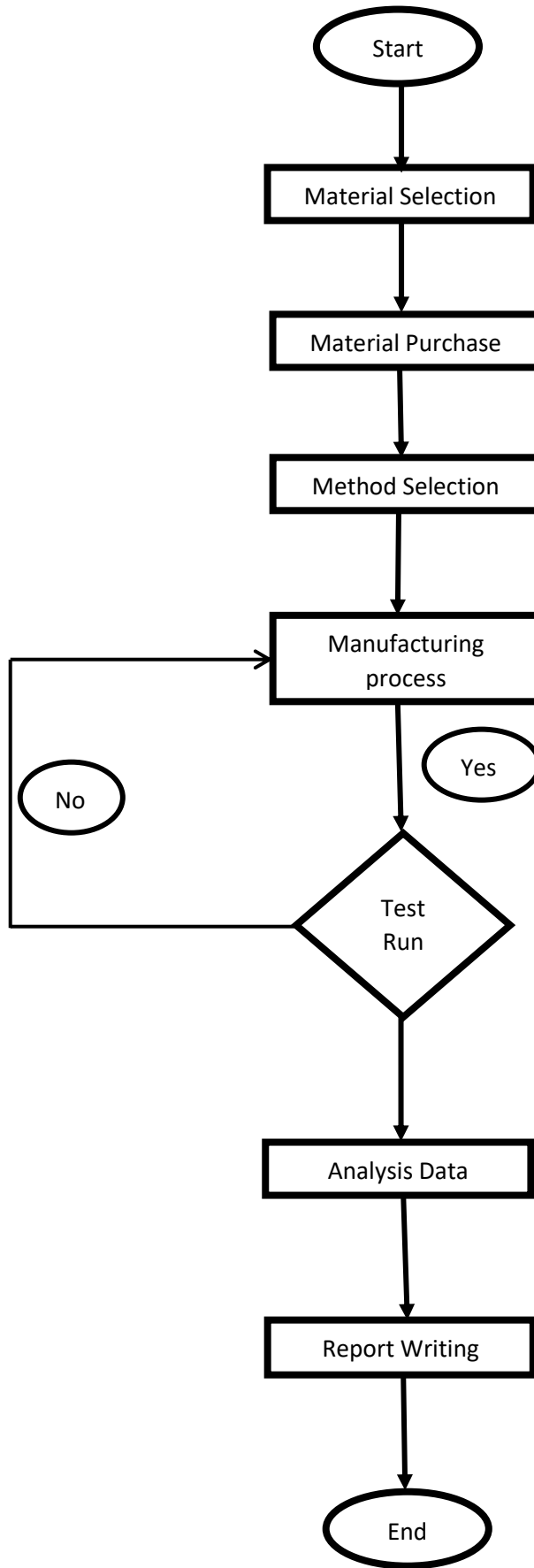


Figure 3.2.1 – Flow Chart

3.3 FLOW CHART EXPLANATION

- **Material Selection**

The process of material selection is one of the most important process in this final year project. The main factor of material selection is to discuss and finalized which materials that will be use in the project in order to avoid wasting of money and time. The material selection need to be done precisely so that the risks could be avoided

1.wood



Figure 3.3.1

Wood is a porous and fibrous structural tissue found in the stems and roots of trees and other woody plants. It is an organic material – a natural composite of cellulose fibers that are strong in tension and embedded in a matrix of lignin that resists compression. It is suitable for use anywhere. In addition, the wood can be shaped either round, square and so on. Therefore, we chose the material because it is suitable for making our saws,

2. saws blade



Figure 3.3.2 – Saw blade

Saws blade are made of materials such as high grade steel, durable steel and so on. Furthermore, this type of saw will depend on the material to be cut. In addition, saws are made of durable material. This way, the material we choose is perfect for cutting

3. DC MOTO



Figure 3.3.3 - Dc motor

A DC motor is any of a class of rotary electrical motors that converts direct current electrical energy into mechanical energy. The most common types rely on the forces produced by magnetic fields. Nearly all types of DC motors have some internal mechanism, either electromechanical or electronic, to periodically change the direction of current in part of the motor.

DC motors were the first form of motor widely used, as they could be powered from existing direct-current lighting power distribution systems. A DC motor's speed can be controlled over a wide range, using either a variable supply voltage or by changing the strength of current in its field windings. Small DC motors are used in tools, toys, and appliances. The universal motor can operate on direct current but is a lightweight brushed motor used for portable power tools and appliances. Larger DC motors are currently used in propulsion of electric vehicles, elevator and hoists, and in drives for steel rolling mills. The advent of power electronics has made replacement of DC motors with AC motors possible in many applications.

4. Lithium polymer batteries (LIPO batteries)



Figure 3.3.4

A lithium polymer battery, or more correctly lithium-ion polymer battery (abbreviated as LiPo, LIP, Li-poly, lithium-poly and others), is a rechargeable battery of lithium-ion technology using a polymer electrolyte instead of a liquid electrolyte. High conductivity semisolid (gel) polymers form this electrolyte. These batteries provide higher specific energy than other lithium battery types and are used in applications where weight is a critical feature, like mobile devices and radio-controlled aircraft.

The main advantages of LiPo battery cells are that they have about four times the energy of density of nickel cadmium or nickel metal hydride batteries. LiPo batteries are very lightweight and pliable, and can be made to almost any size or shape. They can be banged around, punctured, dropped or run over with a car and still not explode, making them more resistant to physical trauma than most batteries.

However, there are various safety issues and disadvantages regarding LiPo batteries. It has been found that overcharging and overheating of the batteries can result in fire. Charging and storage instructions are very specific to these batteries, and should always be followed closely. Poorly made and damaged LiPo battery cells can develop internal shorts or contamination giving rise to serious problems. If a LiPo battery is bulging or misshapen, it should never be charged or used again.

Material Purchase

The process of materials purchasing is crucial to collect and obtains all the materials needed. In this process a lot of research on the places and suppliers that the materials are going to be purchase is done. This step is important so that the risk of material wasting or money-loss will not happen. However, to carry out material purchasing, a well-made purchasing plan needed to be made. First, the suppliers will be contacted to make sure the availability of the materials. Then , the calculation of the amount of materials needed and also the price of the materials. After that, surveys of price must be carried out to determine the better selling prices. Then finally, the purchases could be made.

- **Method Selection**

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.

- **Standard HAND SAW**

Workforce needed

- the work done by the hand saw is entirely by man moving it to cut wood or metal.

Example:



Figure 3.3.5

- **PNEUMATIC SAWS**

Workforce needed

-work is done by systems that use compressed gas such as air to transmit and control energy. In this system, the atmosphere will be inhaled and compressed and energy will be generated to move the pneumatic saws to cut off any material.

Example:



Figure 3.3.6

- **HYDRAULIC SAWS**

Workforce needed

- this work will be accomplished when transferring power using high pressure liquid. Using this system works hard to make cutting of material easier and more convenient.

Example:



Figure 3.3.7

- **DC MOTOR SAWS**

Workforce needed

-work will be done when this machine converts electrical energy into mechanical energy. The availability of electricity as a source and will generate mechanical energy in the form of flash or rotation will result. This will allow the user to easily cut the material.

Example:



Figure 3.3.8

Manufacturing process

1. The measuring process is an important process to determine the shape and size of portable auto handsaw to make it easier for us to cut according to the features desired by the customer. Therefore, the first step is to measure the parts to be cut.
2. Then, the cutting process is continued by cutting the measured parts using the hand saw available in the workshop. make sure to cut to the right size to ensure the shape of the portable auto handsaw looks beautiful.



Figure 3.3.9 - The measuring and cutting process

3. connect the shaft coupler to the DC moto using the allen key tool.

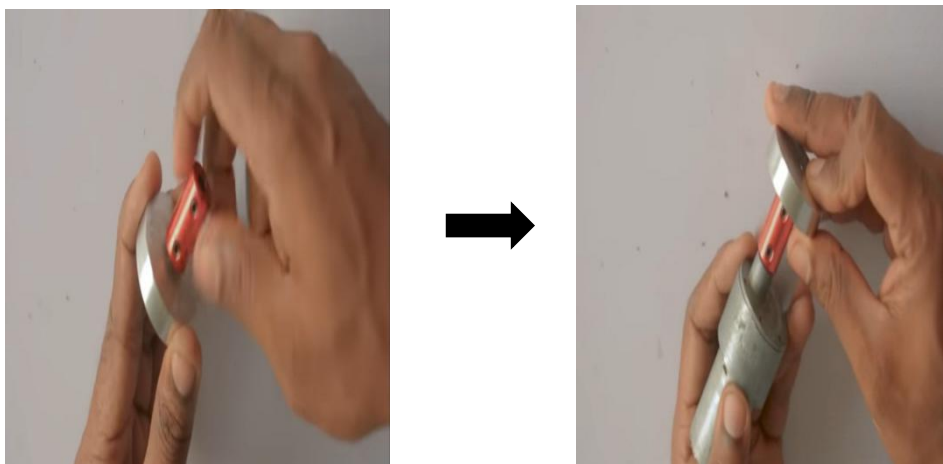


Figure 3.3.10 – dc moto installation process

4. next is Drilling a hole in the wood to attach the dc moto to the wood using a drill.
5. in addition, screw the dc moto and the iron handle on the wood using a screwdriver.



Figure 3.3.11- drilling and screw dc moto

6. Place a small iron rod to connect the dc moto with a saw blade.



3.3.12 – place small iron rod

7. screw all the pieces of wood cut to make it a 'portable auto hand saw' frame using a screwdriver



3.3.13 – screw all pieces of wood

8. Put the spring on the back to facilitate the movement of the saw blade.



Figure 3.3.14 – place spring

9. Connect the wire from the DC moto to the switch using lead.

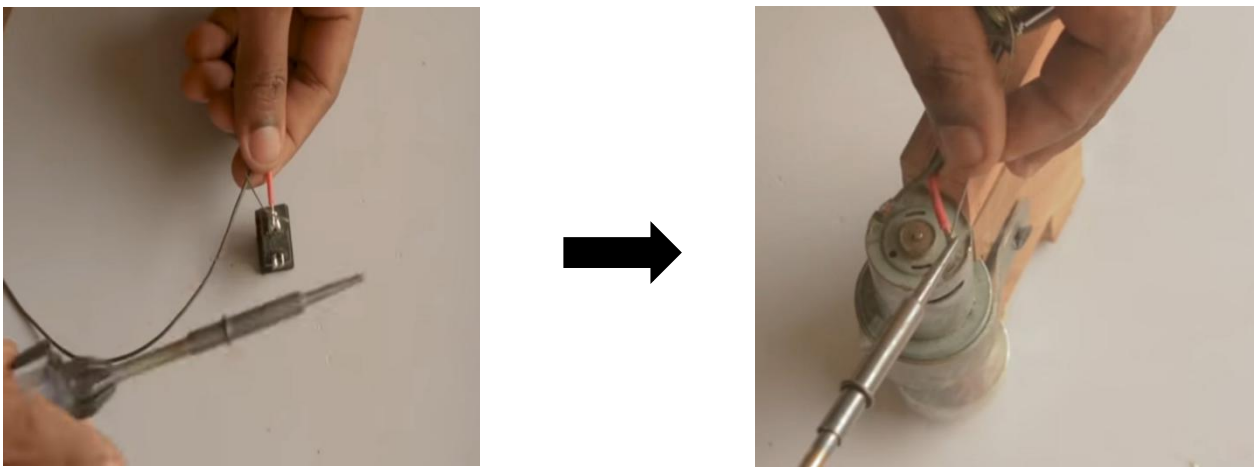


FIGURE 3.3.15 – connect wire to dc moto

10. Connect the handle on the back for easy use.



Figure 3.3.16 – Connect The Handle

- **Test Run**

This test is conducted to determine the speed and strength of the portable auto handsaw. In this test, the speed of the dc moto is tested to determine the speed when the saw blade works as a result of the energy of the dc moto. First, cut a large iron using a portable auto handsaw to determine the cutting force applied to the iron, after which the saw blade on the portable auto handsaw begins to heat on its surface and begins to bend but the cutting speed remains parallel. Then another test was conducted where, we tried to cut the iron for a long time and the result we found was the speed of cutting the iron according to the lack of battery. The less the battery , the less the cutting speed of the iron.

- **Analysis Data**

Analytical and logical we use for the process of evaluating data to ensure every data you find when running this project. This form of analysis is just one of the things we find through the step-by-step that we must complete among the research experiments conducted. Data from the test run was collected, analyzed and studied to identify the advantages and disadvantages, discussion and conclusion from our project. We have collected data from the speed and pace of this project to cut a material that we have created.

- **Report Writing**

Providing report writing is very important in implementing an innovation and construction of a project that has been made. This report must be based on a project that you create, test and analysis is done in order to improve and develop the knowledge of future generations to continue and renew a project. Writing this report based on our analysis and findings that we found during our process we have fully completed the project.

- **Discussion Test run and analysis data**

The conclusion from the analysis we found that the greater the power of the mc dc moto, the faster the blade to cut it. This causes when the strong current flow power on the mc dc and can cause the saw blade to easily cut well. The test we did was to test the time to cut the besi. As a result of the test we did, we found that the cutting rate on that part of the iron was fast. This allows the machine to be made repeatedly.

3.4 PRODUCT DESIGN

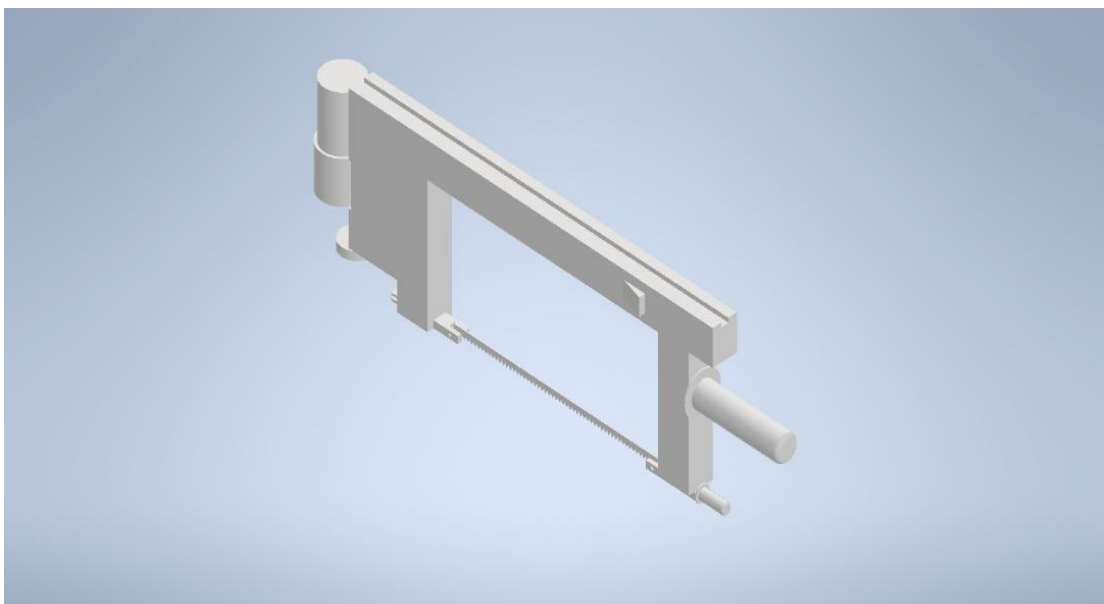
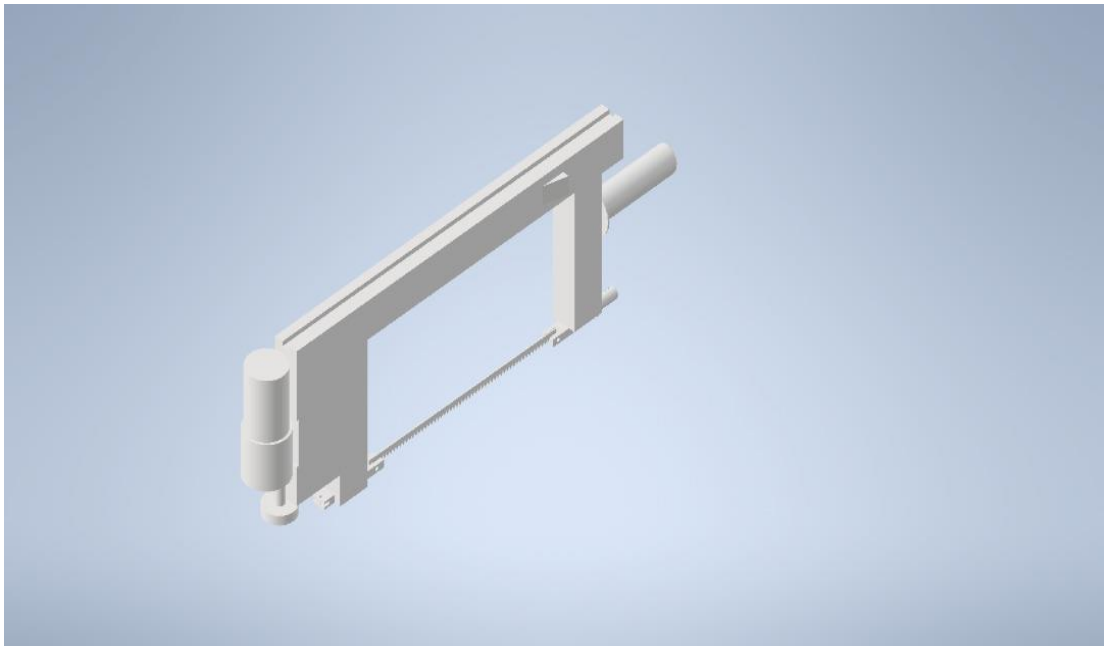


Figure 3.4.1 – product design

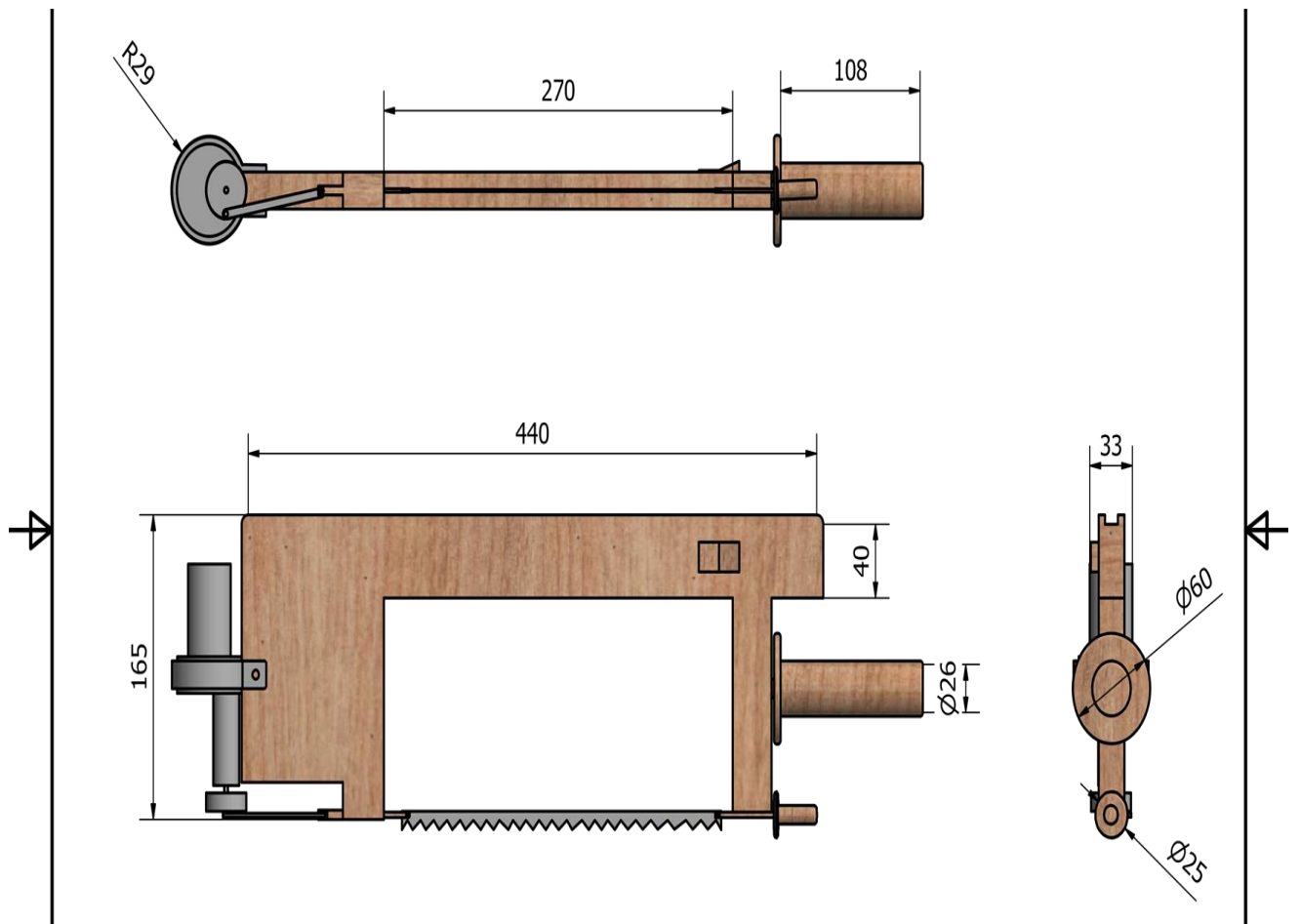


Figure 3.4.2: product size

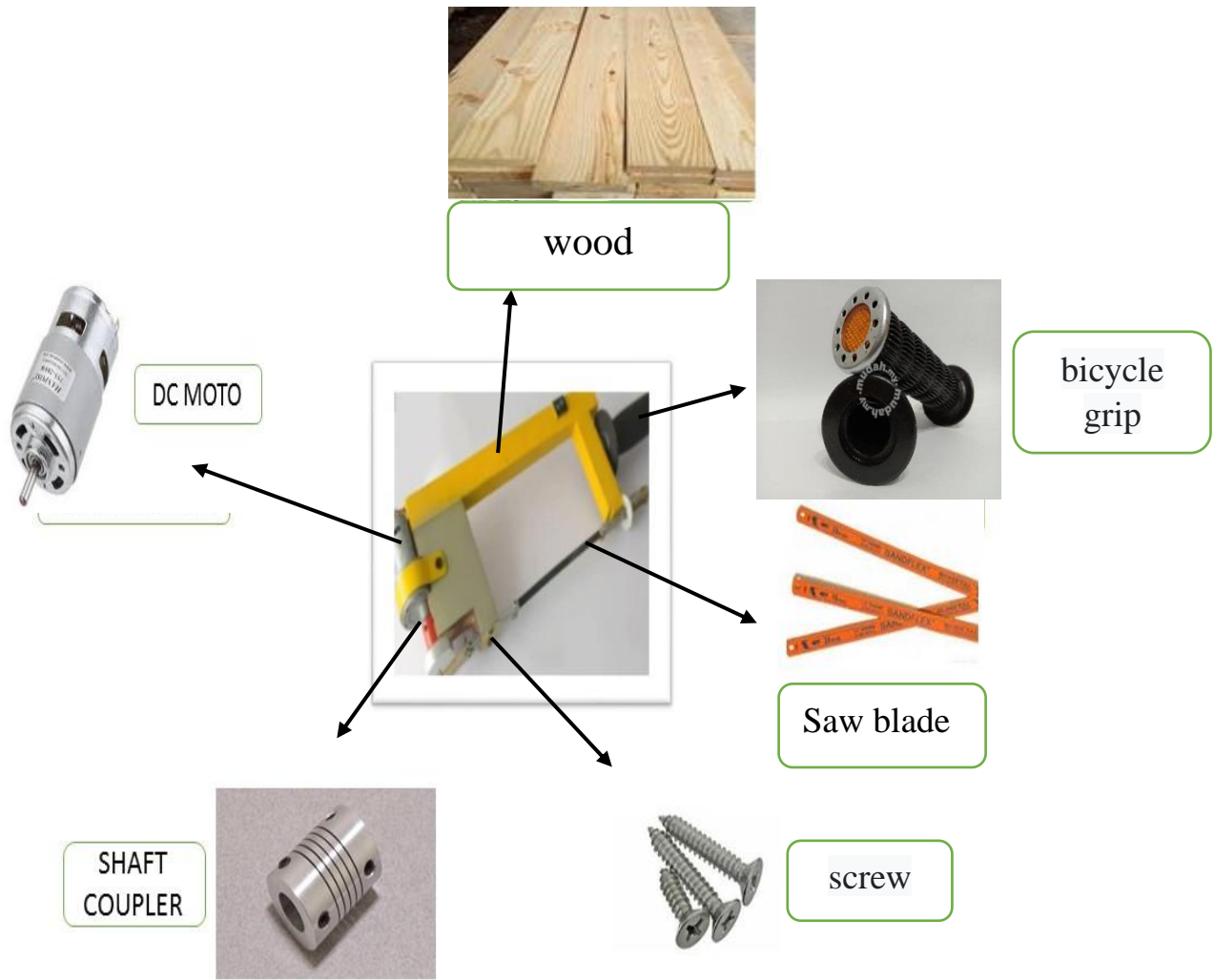
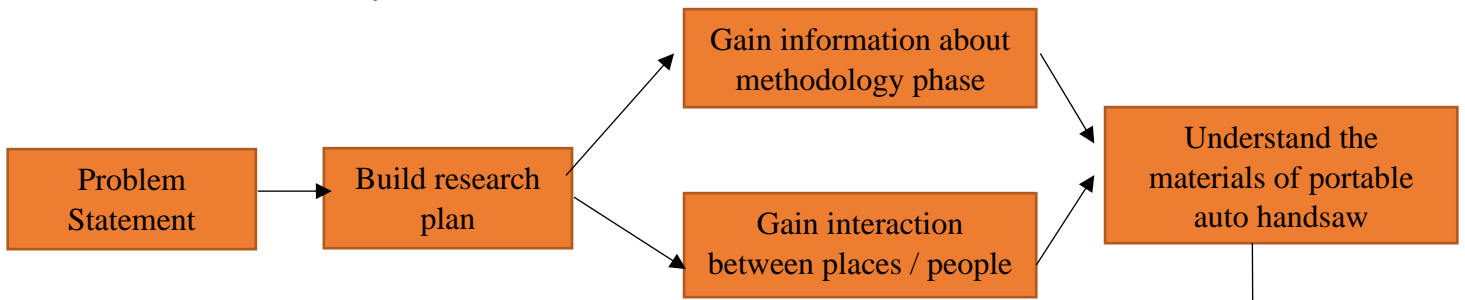


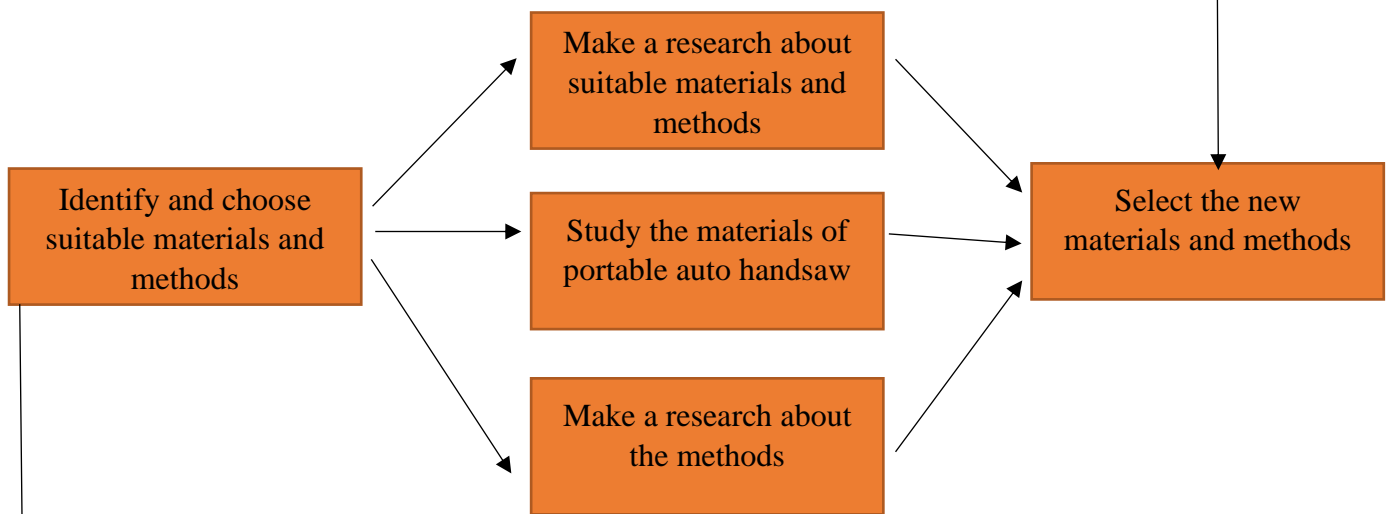
Figure 3.4.3: Product Fabrication

3.5 METHODOLOGY PHASE

Phase 1 : Data Analysis



Phase 2 : Method and Material



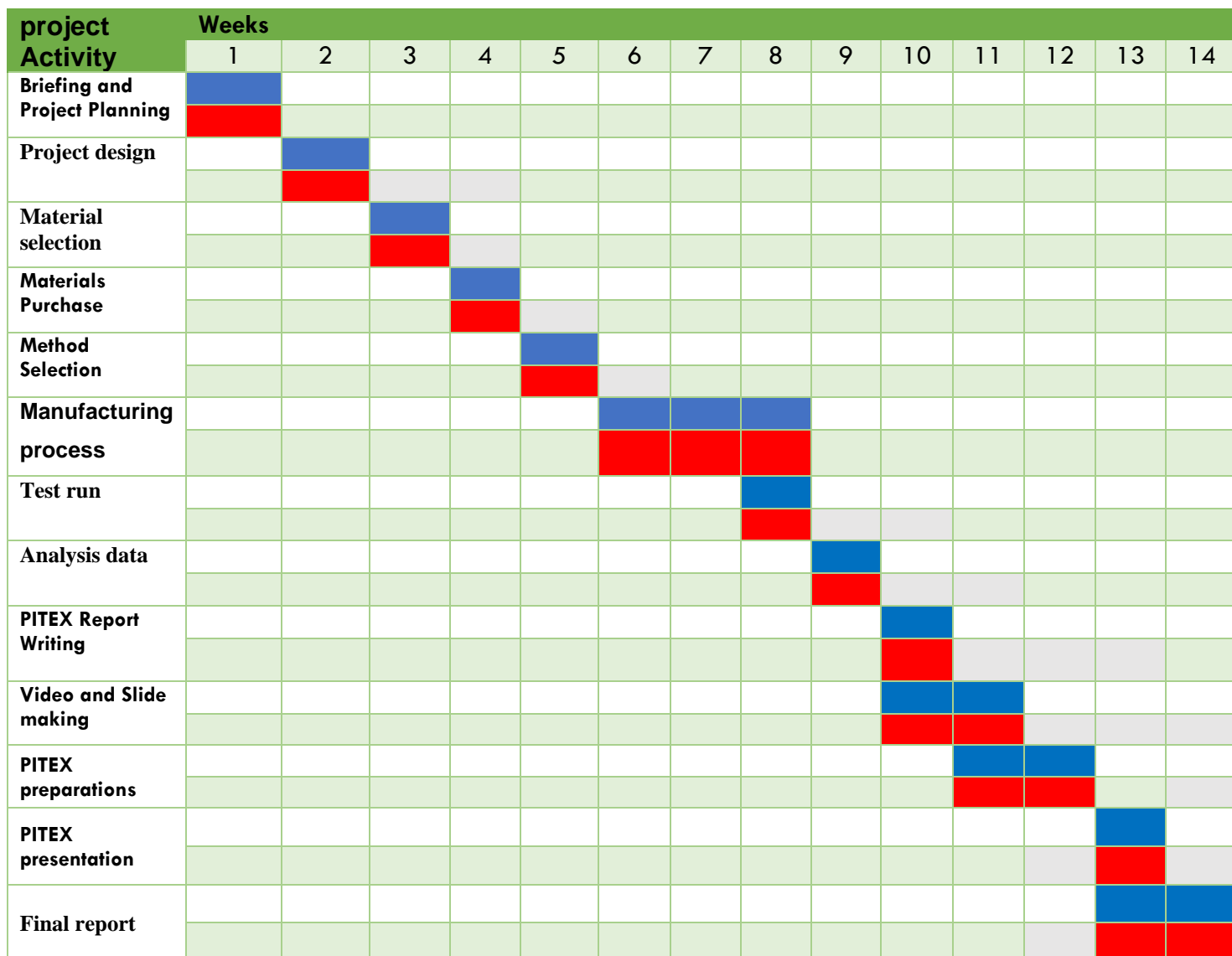
Phase 3 : Preliminary Study



3.6 BUDGET CALCULATION

NO	MATERIAL /EQUIPMENT	AMOUNT	PRICE (RM)
1	Dc motor	1	28.00
2	Saw blade	1	2.10
3	wood	3	5.00
4	cabel	2	1.00
5	SUIZ	1	2.50
6	soldir	1	25.00
7	battery	1	60.00
8	Screw / nut	1 pack	5.00
9	timah	2	3.00
10	Micro moto	1	16.00
		TOTAL	147.60

3.7 PROJECT ACTIVITY (GANTT CHART)



Planning ■
 Actual ■

3.9 SUMMARY

As a conclusion, the methods implemented in this project are very crucial and important to complete the project. The materials used in the project is dc motor , saw blade will and very strong yet very cheap, hence this project is very convenient to the However, this method will affect the result totally if one of the method is change.

CHAPTER 4

FINDINGS AND ANALYSIS

4.1 INTRODUCTION

This chapter combines data and analysis of PORTABLE AUTO HANDSAW and the calculation of their materials. This data and analysis is very important for this project to achieve the objectives and scope of the project. These data show the results of successful material testing. After obtaining all this data, we analyzed every possibility to make it perfect.

4.2 ADVANTAGE AND DISADVANTAGE

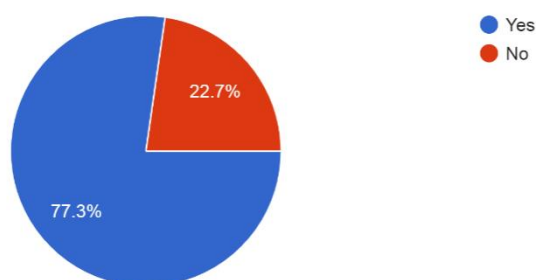
Every project has its own pros and cons, the pros will help the people and also the environment. However, the cons or the disadvantages must be improved or change for the future so that we could enhance the good and very efficient product that hardly to find disadvantage of the project.

Portable auto hand saw has a lot of advantages to help users cut material faster and safer. Besides of the advantages, this project also disadvantages that we must overcome it in the future for the better good.

4.3 FINDINGS AND ANALYSIS

Graph 1

are you a user of hand saws?
22 jawaban

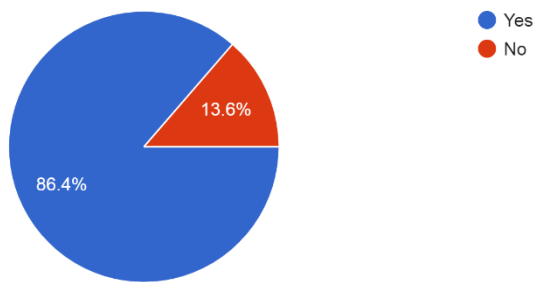


Graph 1 shows if the respondents they are hand saws users or not? 17 (77.3%) claimed to be consumers. while 5 (22.7%) were non-users. From the chart we can conclude that most are consumers.

Graph 2

Do you feel a tingling sensation when using handsaw?

22 jawapan

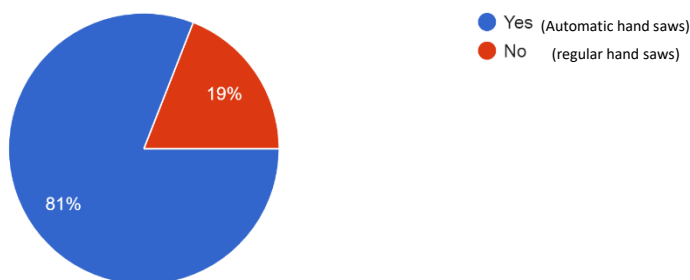


Graph 3 shows the respondent have tingling sensation problems when using hand saw or not? 19 (86.4%) claimed to have this problem, while 3 (13.6%) had no problem, From our chart we can conclude that the majority had tingling sensation problems while cutting metal or wood and this suggests that the project could not be completed within the time frame. this means portable hand saws automatic is very useful in solving this problem.

Graph 3

are you more comfortable using regular hand saws or automatic hand saws?

21 jawapan

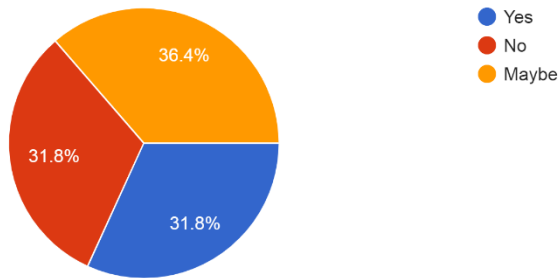


Graph 7 shows the respondent you are comfortable with using a regular saw or an automatic saw?? 17 (81%) stated they were more comfortable using automatic saws while 4 (19%) said they were more comfortable using standard saws. From the chart we can conclude that the majority say that consumers prefer automatic saws instead of regular saws.

Graph 4

Do you feel safe when using a handsaw?

22 jawapan

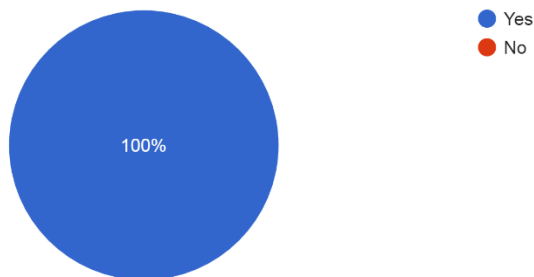


Graph 4 shows whether or not the respondents feel safe when using a saw? 8 (36.4%) said they felt unsafe, 7 (31.8%) felt safe, and 7 (31.8%) answered "maybe" because they were unsure if it was safe or not. From the chart we can conclude that the majority say they are unsafe because they may have been exposed to it.

Graph 5

are you proposing a automatic handsaw project to proceed.?

22 jawapan



Graph 8 shows respondents proposing an automatic hand project to proceed ?? 100% said they fully support this project and that this indicates that users need portable hand saws automatic.

4.4B CHAPTER'S SUMMARY

As a conclusion for this chapter, the analysis and findings have been made. This portable auto hand saw 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. Tests are performed to determine the speed of the moto dc is tested to determine the speed at which the saw blade functions as a result of the dc moto energy. Relationships are well represented in the list.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 INTRODUCTION

This chapter explains about discussion , conclusion and upgrade plan all together for the project . From the data from the test run of the project, the analysis have been done. Hence, the discussion from all the results of test run and analysis will be explain in this chapter. Then , the conclusion will be made based on the discussion and upgrade plan that have been made.

5.2 DISCUSSION

Based on the data and information we collect, we are aware that the project still does not meet the requirements of technology today. therefore, we agree that we need to add INTERNET OF THINGS (IOT). This is because, we believe that by adding IoT to our project, it can provide many benefits to consumers and will probably enter the world market. In addition, if we add IoT to our project, we can also save time and the cutting process will be smoother.

In addition, the saw blade is also easily broken and can cause injury to the user. therefore, we recommend to place high safety features such as placing a protector on each side of the saw blade to prevent the saw blade from breaking. With these safety features, it can give more confidence to the user to use it without thinking of future dangers and the time required to complete a product is less and the procedure is simpler, and the final product will be smooth.

lastly, the saw points with DC moto speed and durable use are small. However, this makes the cutting of the material quite difficult to cut. Therefore, to make cutting the material easier, it is better to use a suitable or larger saw blade. by using this larger saw blade, the material will be easier to cut and the time required to cut the material will be reduced. In addition, we found that the cutting results will be neater. So, based on all these discussions been made , for future improvements , a lot of upgrades could be make to improve the products quality and also to make the time taken of making the product decreases.

5.3 CONCLUSION

Based on this project, it can certainly be said that this portable automatic hand saw provides many benefits not only to humans, but also the environment. In addition, with all the facilities offered by this mobile automatic hand saw, it will help them a lot especially in the price range area because most mobile saws charge high prices so that consumers or small workers cannot have it, moreover, it will also leave a positive impact on the environment as well as humans. All improvements and improvements will be made so that this project can provide more advantages and reduce disadvantages. Therefore, hopefully this project can grow further to all future generations.

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