



**JABATAN KEJURUTERAAN MEKANIKAL**  
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**REPORT**  
**PROJEK 2 DJJ5141**

**LECTURER'S NAME: PN. NOR LIZA BINTI KASIM**

**PROJECT TITLE:**  
**CHAINSAW STAND**

**GROUP MEMBERS:**

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## CHAINSAW STAND

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

## **PENGESAHAN LAPORAN PROJEK**

Laporan projek bertajuk “Chainsaw Stand” ini telah dikemukakan, disemak serta disahkan sebagai memenuhi syarat dan keperluan Penulisan Projek seperti yang telah ditetapkan.

Disemak Oleh

Nama Penyelia:

Tandatangan Penyelia: \_\_\_\_\_

Tarikh:

Disahkan Oleh

Nama Penyelaras:

Tandatangan Penyelaras: \_\_\_\_\_

Tarikh:

**“Kami akui karya ini adalah hasil kerja kami sendiri kecuali nukilan yang setiap satunya telah kami jelaskan sumbernya”**

Tandatangan: \_\_\_\_\_

Nama: MUHAMMAD FIRDAUS BIN NORHISAM

No. Pend: 08DKM17F1148

Tarikh:

Tandatangan: \_\_\_\_\_

Nama: AIDIEL AZIMI BIN YAHAYA

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Tarikh:

## **PENGHARGAAN**

Penulis ingin merakamkan penghargaan ikhlas kepada penyelia projek, Pn. Nor Liza Binti Kasim di atas bimbingan dan perbincangan yang diberi sepanjang tempoh projek ini dilaksanakan.

Penghargaan ini juga saya tujukan kepada ibu bapa saya kerana mereka sentiasa menitipkan doa untuk keberkatan saya di sini. Mereka juga banyak menyokong saya dari segenap segi rohani dan kewangan untuk menghasilkan tugas projek bermutu ini.

Saya juga ingin mendedikasikan ucapan penghargaan ini kepada tema-teman yang sanggup berkongsi ilmu, maklumat dan segala bentuk bantuan yang saya dambakan khususnya dalam menghasilkan dokumen laporan projek ini. Ketahuilah segala bantuan yang anda salurkan amat saya hargai.

Sebelum menutup bicara, penghargaan juga diberikan kepada sesiapa sahaja yang sama ada secara langsung atau tidak langsung membantu dalam penghasilan projek ini.

## ABSTRAK

Asal diperdebatkan, tetapi alat-alat seperti gergaji dibuat sekitar 1830 oleh pakar bedah Jerman Bernhard Heine. Instrumen ini, osteotomi, mempunyai pautan rantai yang membawa gigi pemotong kecil dengan kelebihan yang ditetapkan pada sudut; Rantainya bergerak mengelilingi pisau membimbing dengan menghidupkan pemegang pancing ikan. Saw gergaji adalah mudah alih; mesin pemotong melihat dengan satu set gigi dipasang pada rantai berputar yang berjalan di sepanjang bar panduan. Ia digunakan dalam aktiviti seperti menebang pokok, membimbing, melompat, memangkas, memecat kayu api dan menuai kayu api. Satu set rantai dengan bar yang direka khas dan gabungan rantai telah dibangunkan sebagai alat untuk digunakan dalam saws dan kilang papan. Bilah khas digunakan untuk memotong konkrit. Gergaji gergaji kadang kala digunakan untuk pemotongan ais, contohnya patung es dan di Finland untuk berenang musim sejuk. Kesimpulannya, ini menjadikan mesin boleh digunakan dengan mudah dan selamat. Hanya dengan itu, produk kami boleh menjimatkan masa pengguna dan keramahan pengguna. Di samping itu, produk kami boleh memudahkan kerja harian, terutamanya suri rumah dengan masalah sekali-sekala. Selain itu, produk kami sangat ekonomik kerana ia mudah untuk digunakan. Kami juga berharap produk kami akan dipasarkan di luar negara kerana kami percaya produk kami akan lebih baik daripada yang ada di pasaran. Oleh itu, kita mesti bekerja keras untuk mencapai impian dan potensi produk kami. kami percaya mimpi ini dapat dicapai setelah mempersoalkan orang yang menggunakan gergaji itu. Kami percaya dalam reka bentuk yang kami hasilkan yang boleh bersaing dengan jenama asing. Walau bagaimanapun, sebelum dipasarkan kita perlu memeriksa semua kelemahan dalam produk kami. kami akan berusaha keras untuk menjadikan produk kami selamat dan mesra pengguna. kami juga akan memastikan komponen produk kami berjalan dengan lancar sebelum dipasarkan di luar negara terutamanya dalam perniagaan dalam talian yang pesat berkembang.

## **ABSTRACT**

Origin was debated, but tools such as saws were made around 1830 by German orthopaedists Bernhard Heine. This instrument, the osteotomies, has a chain link that carries a small cutter tooth with an edge set at an angle; The chain moves around the guiding knife by turning on the fishing rod holder. Saw saws are portable; a cutting machine saw with a set of teeth mounted on a spinning chain that runs along the guide bar. It is used in activities such as felling trees, guiding, jumping, trimming, firing firewood and harvesting firewood. A set of chains with specially designed bars and chain combinations have been developed as tools for use in saws and sawmills. Special blades are used for cutting concrete. Chainsaws are sometimes used for ice cutting, for example for ice statues and in Finland for winter swim. In conclusion, this saw making machine can be used easily and securely. Only then can our products save user's time and user friendliness. In addition, our products can facilitate daily work, especially housewives with occasional problems. Also, our products are very economical because they are easy to operate. We also hope our products will be marketed overseas because we believe our products will be better than those in the market. Therefore, we must work hard to achieve our product dreams and potentials. we believe this dream can be achieved after questioning the person using the saw. We believe in the designs we produce that can compete with foreign brands. However, before being marketed we need to examine all the weaknesses in our products. we will work hard to make our products safe and user-friendly. we will also ensure that our product components run smoothly before being marketed overseas especially in the fast growing online business.

## CONTENT

	<b>CHAPTER 1 INTRODUCTION</b>	<b>PAGE</b>
1.1	INTRODUCTION	9
1.2	PROJECT BACKGROUND	9
1.3	PROBLEM STATEMENT	9
1.4	OBJECTIVES	10
1.5	PROJECT SCOPE	10
	<b>CHAPTER 2 LITERATURE REVIEW</b>	
2.1	INTRODUCTION	10
2.2	LITERATURE REVIEW	11-14
	<b>CHAPTER 3 METHODOLOGY</b>	
3.1	INTRODUCTION	15
3.2	METHODOLOGY	16-23
	<b>CHAPTER 4 RESULT &amp; DISCUSSION</b>	
4.1	RESULT & DISSCUSSION BY MUHAMMAD FIRDAUS	24-36
4.2	RESULT & DISSCUSSION BY AIDIEL	37-43
	<b>CHAPTER 5 CONCLUSION &amp; RECOMMENDATION</b>	
5.1	CONCLUSION	45
5.2	RECOMMENDATION	46
	<b>REFERENCES</b>	47



# CHAPTER 1

## INTRODUCTION

### 1.1 INTRODUCTION

This chapter is discussed about the project background, the problem of the project, the objectives of the project and project scope.

### 1.2 PROJECT BACKGROUND

The earliest patent for an "endless chain saw" (US patent 780,476) was granted to Samuel J. Bens of San Francisco on January 17, 1905, and filed roughly 18 months earlier in July 1903. Here's one of the diagrams from that patent, showing (from the side and from above) a huge, static sawing machine slicing through a tree trunk. Bens was mainly concerned with how the saw worked and didn't specify the power source, except to note that it was "furnished with driving power, such as a steam-engine, gas-engine, or motor of any kind." About 16 years later, in 1921, he filed another patent (US patent number 1,617,565) for a portable chain saw that "aims to provide a simple, compact, durable, and efficient machine capable of being easily handled by a couple of operators to rapidly and expeditiously cut logs or trees irrespective of the position, and one which can be readily conveyed from place to place. The clue is in the name! A chainsaw has two main parts: a saw blade built into a chain, wrapped around a long metal guide bar, and a small, one-cylinder gasoline (petrol) engine (sometimes an electric motor powered by a cord or battery pack). The chain is a bit like a bicycle chain, running around sprockets (gear wheels designed to turn a chain) only with about 30 or so sharp teeth (made from a hardened steel alloy) mounted around it at intervals. Inside the engine, as the piston moves in and out of the cylinder, it pushes a connecting rod that turns a crankshaft. The crankshaft turns gears that are connected (through a centrifugal clutch, explained below) to one of the sprockets on which the chain is mounted and the chain spins around.

### 1.3 PROBLEM STATEMENT

Power tools are great, but they come with their inherent problems that need to be addressed. Chainsaw problems can range from minor to detrimental and can lead to danger if not addressed. Taking care of the typical problems that arise with chainsaws don't have to be a difficult process, and most of it can be done without the help of a professional if you have any experience with these tools at all. However, sometimes, especially if you aren't very familiar with how your chainsaw is built or works, you might want to seek help. A number of the normal chainsaw problems experienced by users can be easily avoided through proper care and maintenance, as well as by assuring that you purchase a quality product in the first place. Women and parents have problems when they operate the chainsaw machine. This is especially dangerous when cutting wood.

## **1.4 OBJECTIVES**

The objectives of this project are:

1. Easy to handle because it does not require much energy.
2. More user-friendly.
3. Security is more secure.

## **1.5 PROJECT SCOPE**

The scope of our project is that our project is suitable for use in rural areas as rural areas have many trees to cut. In addition, our project was cutting medium-sized wood 5 cm thick and above.

## CHAPTER 2

### LITERATURE REVIEW

**PREPARED BY: MUHAMMAD FIRDAUS BIN NORHISAM**

#### 2.1 INRODUCTION

A literature review is a comprehensive summary of previous research on a topic. The literature review surveys scholarly articles, books, and other sources relevant to a particular area of research. There is previous research on axe and handsaw. That research was prepared by me.

#### 2.2 AXE



Initially axes were tools of stone called hand axes, used without handles (hafts), and had knapped (chipped) cutting edges of flint or other stone. Stone axes made with ground cutting edges were first developed sometime in the late Pleistocene in Australia, where ground-edge axe fragments from sites in Arnhem Land date back at least 44,000 years; ground-edge axes were later invented independently in Japan sometime around 38,000 BP, and are known from several Upper Palaeolithic sites on the islands of Honshu and Kyushu. In Europe, however, the innovation of ground edges occurred much later, in the Neolithic period ending 4,000 to 2,000 BC. The first true hafted axes are known from the Mesolithic period (c. 6000 BC). Few wooden hafts have been found from this period, but it seems that the axe was normally hafted by wedging. Birch-tar and raw-hide lashings were used to fix the blade. It splits the wood into two parts by the pressure concentration at the blade. The handle of the axe also acts as a lever allowing the user to increase the force at the cutting edge—not using the full length of the handle is known as choking the axe. <https://en.wikipedia.org/wiki/Axe>

## 2.3 HANDSAW



Handsaws have been around for thousands of years. Egyptian hieroglyphics exist depicting ancient woodworkers sawing boards into pieces. Ancient bow saws have been found in Japan. The cut patterns on ancient boards may be observed sometimes to bear the unique cutting marks left by saw blades, particularly if the wood was not 'smoothed up' by some method. As for preservation of handsaws, twenty-four saws from eighteenth-century England are known to survive. Materials for saw blades have varied over the ages. There were probably bronze saws in the time before steel making technology became extensively known and industrialized within the past thousand years or so. Sometimes cultures developed two main types of saw teeth: the cross cut saw teeth and the rip saw teeth. These cut into the wood using different mechanisms. Wood is composed of many long cells running lengthways. Thus, crosscut saws have saw teeth that are usually shaped, often with a metal file, in such a way that they form a series of tiny knifelike edges. The wood cells are contacted by the knife-edge of the tooth and cut. Rip saws, on the other hand, are usually shaped so that they form a series of tiny chisel-like edges. The wood cells are contacted by the chisel and 'ripped' apart from the bundle of other cells. It is common that people do not recognize the difference and use saws both ways. However, a rip saw is much faster than a cross-cut saw when cutting with the grain but leaves a very rough cut, often with splinters on the surface, and has more difficulty maintaining a straight cut when cutting across the grain. The cross-cut saw can cut in any direction but is much slower than needs be when cutting with the grain. Manual saws are also much lighter than power saws so they can be used for sawing in awkward places such as overhead. The risk of injury is also higher with power tools due to high speeds and increased power. [https://en.wikipedia.org/wiki/Hand\\_saw](https://en.wikipedia.org/wiki/Hand_saw)

## LITERATURE REVIEW

PREPARED BY: AIDIEL AZIMI BIN YAHAYA

### 2.4 CROSSCUT SAW



Crosscut saws have been in use around the world since historic times, with the design of the saws (the cutting surfaces, the bow and shape of the saw, and the handles) changing over time to accommodate differences in the types of trees being cut, changes in metallurgy technology, and the application of experience. Records exist of crosscut saws in use during the Roman Empire although not widely. They came into wide usage in Europe in the middle of the 15th century. Early saws had a plain tooth pattern until the M tooth pattern was developed in 15th century south Germany. Prior to about 1880 crosscut saws were primarily used for bucking, with axes used to fell trees. Starting in Pennsylvania about 1880, loggers began using the saws for felling trees as well. Despite the modern chainsaw, they are still in wide use around the world, not only in competition matches against chainsaws but also in regular, real-life usage since they afford certain advantages over gasoline-powered saws. A crosscut saw (thwart saw) is any saw designed for cutting wood perpendicular to (across) the wood grain. Crosscut saws may be small or large, with small teeth close together for fine work like woodworking or large for coarse work like log bucking, and can be a hand tool or power tool. The cutting edge of each tooth is angled in an alternating pattern. This design allows each tooth to act like a knife edge and slice through the wood in contrast to a rip saw, which tears along the grain, acting like a miniature chisel. Some crosscut saws use special teeth called "rakers" designed to clean out the cut strips of wood from the *kerf*. Crosscut saws generally have smaller teeth than rip saws. Some saws, such as Japanese saws and those used by the ancient Egyptians, are designed to cut only on the pull stroke. Western saws, on the other hand, are designed to cut on the push stroke. [https://en.wikipedia.org/wiki/Crosscut\\_saw](https://en.wikipedia.org/wiki/Crosscut_saw)

## 2.5 FRETSAW



The fretsaw is a bow saw used for intricate cutting work which often incorporates tight curves. Although the coping saw is often used for similar work, the fretsaw is capable of much tighter radii and more delicate work. It has a distinctive appearance due to the depth of its frame (typically between 10 and 20 inches), which together with the relatively short five inch blade makes this tool appear somewhat out of proportion compared with most other saws. Compared with the coping saw it has much shallower blades, which are usually extra-fine, up to 32 teeth per inch (tpi). This allows much tighter curves to be cut—with many blades even sharp corners are possible—but the blades are also much more fragile compared with that of a coping saw. Unlike the coping saw, the blade has a fixed orientation in relation to the frame. This means that the fretsaw is less useful when cutting long narrow components, but the increased depth of the frame does allow access much further from the edge of the board. The fretsaw is similar in many respects to the scroll saw, which is essentially a powered fretsaw with a table. Blades between the two tools are usually interchangeable, and indeed scroll saws are often known as "fret saws" informally. Because of its sheer size, the frame makes up a large proportion of the total weight of the tool and has a relatively large moment, which in the hands of an inexperienced user can create a tendency for the direction of cut to drift away from that desired. To counter this the fretsaw is usually used with the handle (and blade) aligned on a vertical axis which reduces the effects of this torque. The effect may also be lessened with a shorter (and lighter) frame, although this also reduces the size of components that may be worked. A cutting or fretwork table, also known as a V-board, made of either wood or metal and which clamps to the edge of the workbench, may be used to support the work piece whilst allowing clearance for the saw blade by means of a V-shaped slot cut into it. The blade is usually clamped into position using a pair of wingnuts. Although wing nuts are usually intended for operation without tools it is often impossible to apply sufficient force purely by hand. Wingnut wrenches greatly increase the torque that may be applied, ensuring that the blade is securely clamped.

# CHAPTER 3

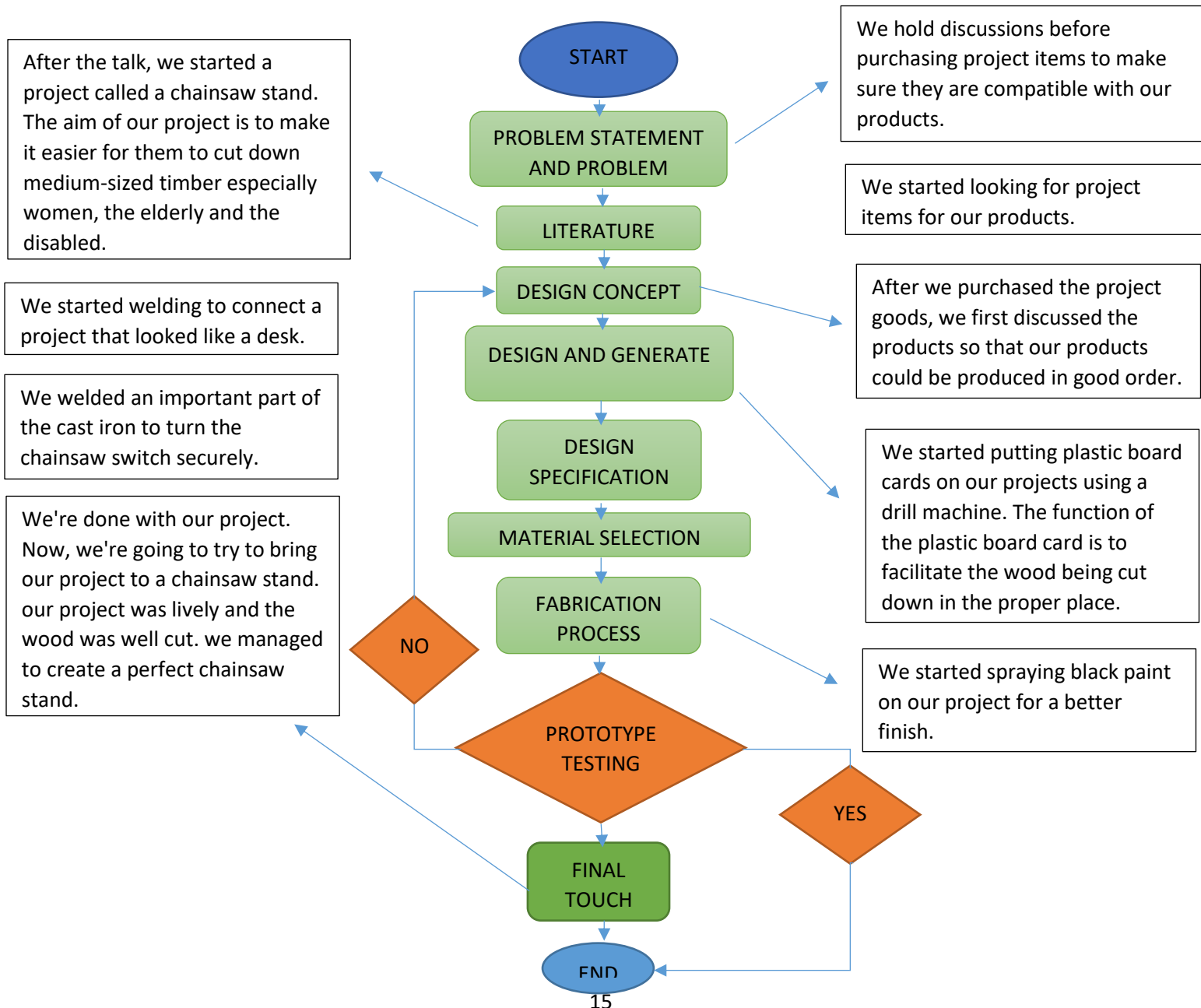
## METHODOLOGY

**PREPARED BY: MUHAMMAD FIRDAUS BIN NORHISAM**

### 3.1 INTRODUCTION

Methodology is the systematic, theoretical analysis of the methods applied to a field of study. It comprises the theoretical analysis of the body of methods and principles associated with a branch of knowledge. Typically, it encompasses concepts such as paradigm, theoretical model, phases and quantitative or qualitative techniques.

### 3.2 FLOW CHART



### 3.3 GANTT CHART (PROJEK 1)

MINGGU	STATUS	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15
AKTIVITI PROJEK																
Project	R															
	L															
Literature review	R															
	L															
Methodology	R															
	L															
Problem statement	R															
	L															
Objectives	R															
	L															
Survey component	R															
	L															
Conclusion	R															
	L															
Presentation	R															
	L															
Submit proposal	R															
	L															
Submit log book	R															
	L															

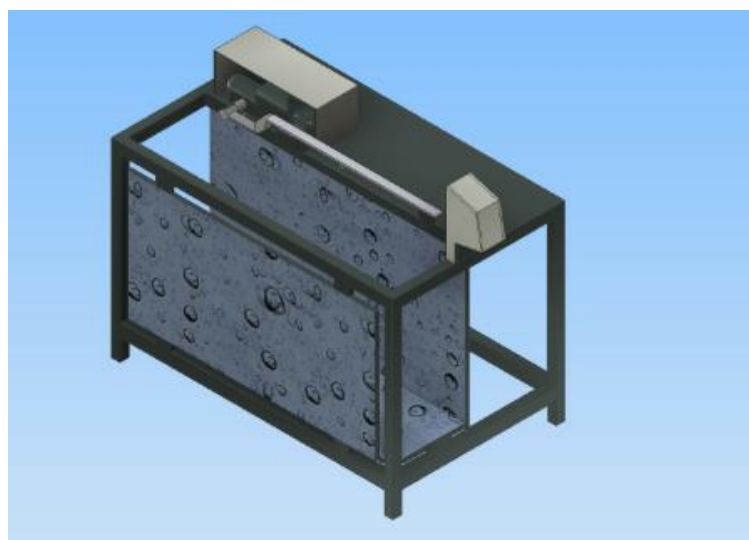


### 3.4 GANTT CHART (PROJEK 2)

MINGGU	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15
AKTIVITI PROJEK															
- BERBINCANG UNTUK PENYEDIAAN PROJEK.	■														
- MULA Mencari BARANG UNTUK PENGHASILAN PRODUK.		■													
- MULA Mencari BARANG UNTUK PENGHASILAN PRODUK.			■												
- MULA Mencari BARANG UNTUK PENGHASILAN PRODUK.				■											
- MULA MENJALANKAN PROJEK. - MENYAMBUNG BADAN PROJEK MENGGUNAKAN KIMPALAN.					■										
- MULA MENJALANKAN PROJEK. - MENYAMBUNG BADAN PROJEK MENGGUNAKAN KIMPALAN.						■									
- MULA MENJALANKAN PROJEK. - MENYAMBUNG BADAN PROJEK MENGGUNAKAN KIMPALAN.							■								
- MULA MENJALANKAN PROJEK. - MENYAMBUNG RODA BADAN PROJEK.								■							
- MULA MENJALANKAN PROJEK. - MENYAMBUNG RODA BADAN PROJEK.									■						

- MULA MENJALANKAN PROJEK. - MENYAMBUNG CHAINSAW PADA PROJEK.																			
- MULA MENJALANKAN PROJEK. - MEMBUAT SEMBURAN CAT PADA PROJEK.																			
- MULA MENJALANKAN PROJEK. - PROJEK KAMI SUDAH SIAP.																			
- PROJEK KAMI SEDIA UNTUK DIBENTANG.																			
- KAMI MULA MEMBENTANGKAN PROJEK DI HADAPAN JURI.																			
- KAMI MENGHANTAR LAPORAN PROJEK 2 KEPADA PENSYARAH.																			

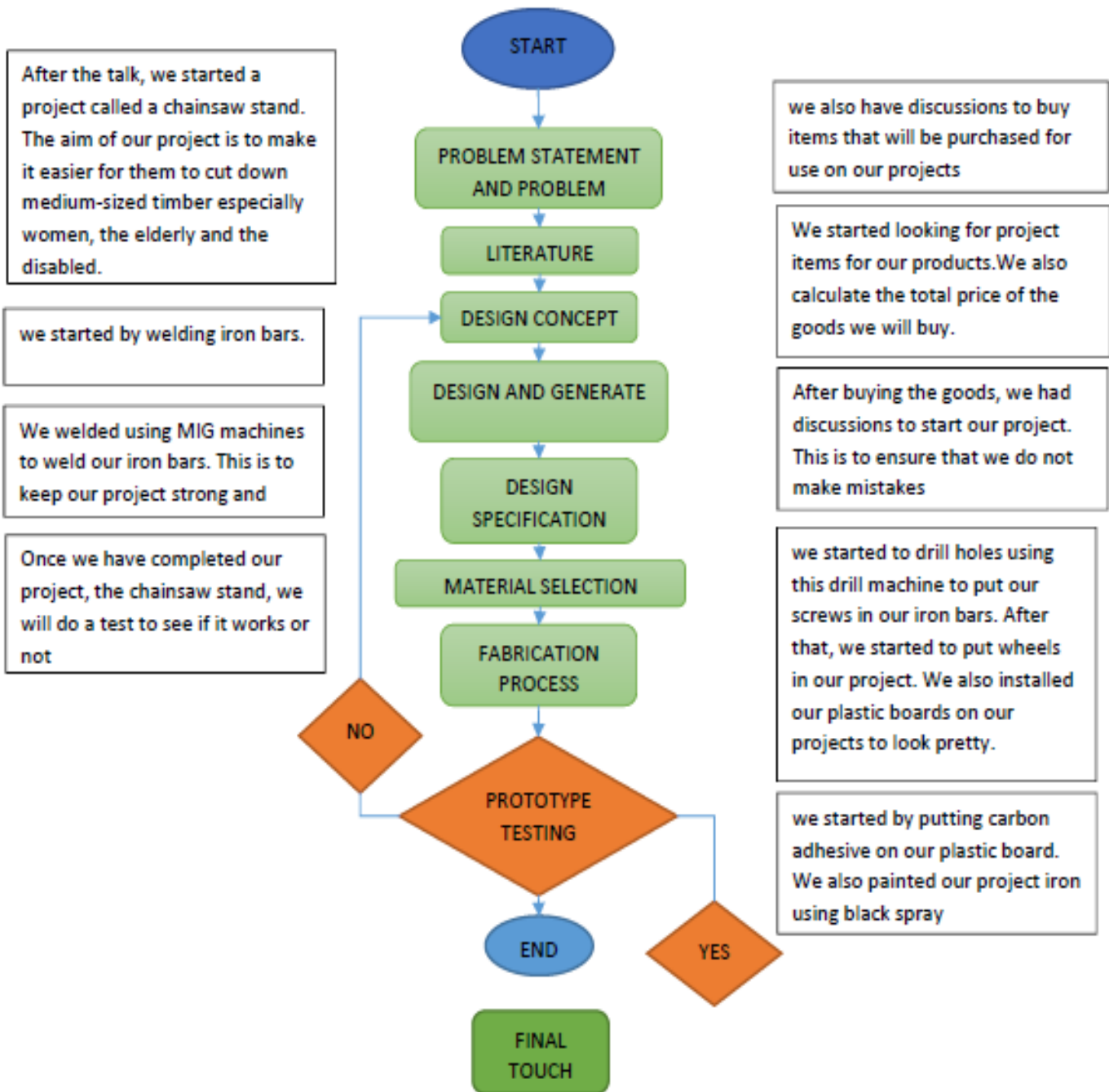
**3.4 PROJECT DESIGN**



# METHODOLOGY

## PREPARED BY: AIDIEL AZIMI BIN YAHAYA

### 3.5 FLOW CHART

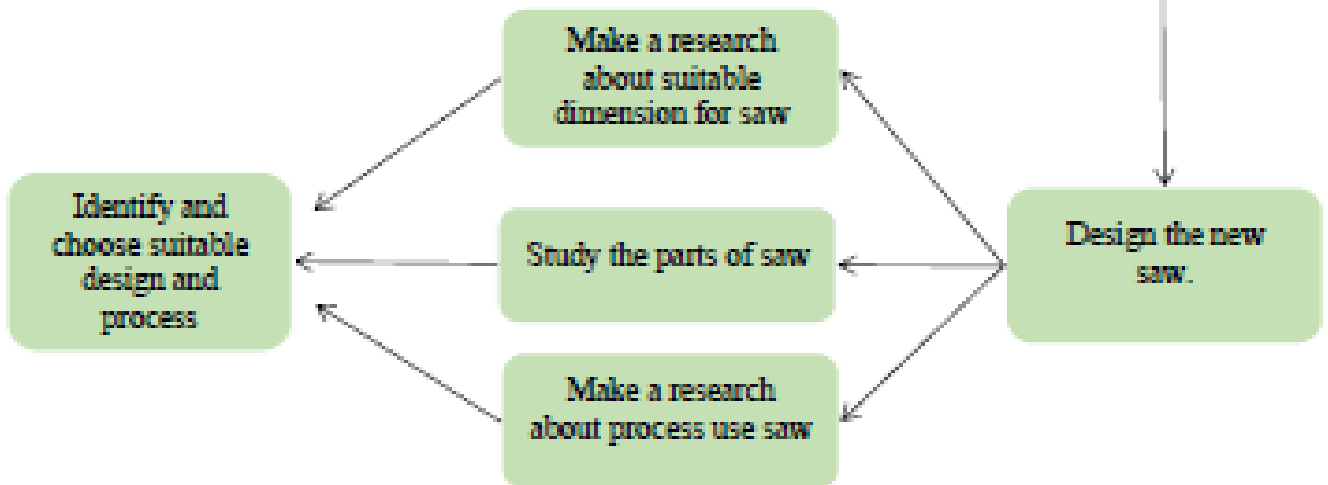


### 3.6 FLOW CHART

#### Phase 1: Data analysis



#### Phase 2: Design face



#### Phase 3: Preliminary study



## GANTT CHART

MINGGU	STATUS	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15
		AKTIVITI PROJEK														
Project	R	[Red bar from M1 to M15]														
	L															
Literature review	R	[Red bar from M2 to M5]														
	L															
Methodology	R	[Red bar from M3 to M7]														
	L															
Problem statement	R	[Red bar from M5 to M9]														
	L															
Objectives	R	[Red bar from M7 to M11]														
	L															
Survey component	R	[Red bar from M10 to M12]														
	L															
Conclusion	R	[Red bar from M10 to M14]														
	L															
Presentation	R	[Red bar from M14 to M15]														
	L															
Submit proposal	R	[Red bar from M15 to M15]														
	L															
Submit log book	R	[Red bar from M15 to M15]														
	L															

## GANTT CHART

MINGGU	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15
AKTIVITI PROJEK															
- BERBINCANG UNTUK PENYEDIAAN PROJEK.															
- MULA Mencari BARANG UNTUK PENGHASILAN PRODUK.															
- MULA Mencari BARANG UNTUK PENGHASILAN PRODUK.															
- MULA Mencari BARANG UNTUK PENGHASILAN PRODUK.															
- MULA MENIALANKAN PROJEK. - MENYAMBUNG BADAN PROJEK MENGGUNAKAN KIMPALAN.															
- MULA MENIALANKAN PROJEK. - MENYAMBUNG BADAN PROJEK MENGGUNAKAN KIMPALAN.															
- MULA MENIALANKAN PROJEK. - MENYAMBUNG BADAN PROJEK MENGGUNAKAN KIMPALAN.															
- MULA MENIALANKAN PROJEK. - MENYAMBUNG RODA BADAN PROJEK.															
- MULA MENIALANKAN PROJEK. - MENYAMBUNG RODA BADAN PROJEK.															

- MULA MENJALANKAN PROJEK. - MENYAMBUNG CHAINSAW PADA PROJEK.															
- MULA MENJALANKAN PROJEK. - MEMBUAT SEMBURAN CAT PADA PROJEK.															
- MULA MENJALANKAN PROJEK. - PROJEK KAMI SUDAH SIAP.															
- PROJEK KAMI SEDIA UNTUK DIBENTANG.															
- KAMI MULA MEMBENTANGKAN PROJEK DI HADAPAN JURI.															
- KAMI MENGHANTAR LAPORAN PROJEK 2 KEPADA PENSYARAH.															

## **CHAPTER 4**

### **RESULT & DISSCUSSION**

#### **4.1 DATA COLLECTION**

Instructions: Please read each statement below and answer the questions given honestly and carefully. Please tick (/) in the box provided.

#### **SECTION A**

##### **RESPONDENT BACKGROUND**

1. Gender: Male ( ) Female ( )
2. Employment: Government ( ) Private ( ) Others ( )
3. Age: 18-25 Years ( ) 26-40 Years ( ) Others ( )

#### **SECTION B**

1. Do you have problems cutting branches of trees?  
( ) Yes      No ( )
2. Do you have difficulty controlling the chainsaw?  
( ) Yes      No ( )
3. Are you still using a handsaw or axe to cut a large tree branch?  
( ) Yes      No ( )
4. Have you ever used the Chainsaw Stand?  
( ) Yes      No ( )
5. If this product is marketed, will you have it?  
( ) Yes      No ( )



## 4.2 DATA ANALYSIS

### ANALYSIS FROM QUESTIONNAIRES

We have collected data from 30 peoples randomly who used sink in their daily life.

PROBLEM	YES	NO	%
1. Do you have problems cutting branches of trees?	25	5	83
2. Do you have difficulty controlling the chainsaw?	22	8	73
3. Are you still using a handsaw or axe to cut a large tree branch?	25	5	83
4. Have you ever used the Chainsaw Stand?	27	3	90
5. If this product is marketed, will you have it?	28	2	93



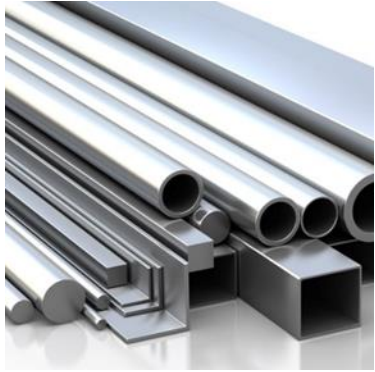
From the survey that we conducted, 90% of the responded is male and the rest is female respondent. 70% of the respondent working in private sector and the rest is working in government sector.

With the same percentage of respondent, they are having problem with the clogged sinks. As the result we came out with an idea to make our Mini Tree Trunk Machines so we can settle this problem.

#### **Conclusion from analysis questionnaire of respondent.**

Based on the questionnaire, there are many suggestions suggested by the respondents to improve existing Chainsaw Stand that more ergonomics and easy to use.

### 4.3 MATERIAL & COST

<p><b>1. Cutting chain</b></p> 	<p>Used to cut wood or objects easily. Rm 30.00</p>
<p><b>2. Wheel</b></p> 	<p>To move the engine to the project and to facilitate moving the machine to the workplace. Rm 20.00</p>
<p><b>3. Metal</b></p> 	<p>Used as support for the machine as well as stainless and lightweight. Rm 200.00</p>

**4. Gum 3M**



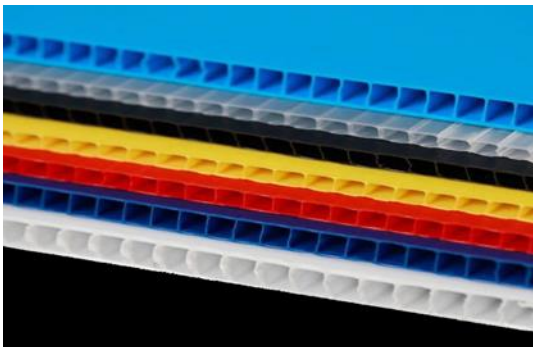
Used for paste the plastic cardboard.  
Rm 10.00

**5. Chainsaw**



Used for cutting wood and workpiece.  
Rm 140.00

**6. Cardboard plastic**



Accommodate the cut wood.  
RM20.00

#### 7. Cable Tie



Used for to hold the chainsaw and cardboard plastic.  
RM5.00

#### 4.4 CALCULATION

1.  $3/8 \times 2 = 3/4$  or 0.75
2.  $0.75 \times 7$  (number of teeth on sprocket) = 5.25.
3.  $5.25 \times 12,000$  (saw RPM) = 63,000 inches per minute.
4. 63,000 divided by 12 = 5,250 feet per minute, 63,000 divided by 720 = 87.50 feet per second.

## RESULT & DISSCUSSION

### PREPARED BY: MUHAMMAD FIRDAUS BIN NORHISAM

#### 4.5 FABRICATION OF PROJECT

1- In the early stages we took pre-made iron and brought it to the workshop for welding. Before welding we examine the project sketch again before starting the project. For the early stages we cut the tip of the iron to 45 degrees to allow for a smooth connection.



2- After 45-degree iron cutting, the iron-bonding process can begin. For the first step we will be welding steel to make the back frame.



3- Once we have finished the frame on the back of the project, we move on to the front of the project. The front part of the project is a bit difficult as it requires good welding.



4- After finishing the frame on the front and back. We need to put some finishing touches on the welding part of the project to look neat and detect the defects in the steel during welding. We use a grinder machine to clean the welding area. We used magic flap slip to clean the welding area.



5- Next we put a plastic board on the side of our project. We drill holes in the iron first before laying the boards.



6- We started putting wheels on our projects to make our projects easy to move around.



7- After that we started to colour our project in black.



8- Project complete.



9- We are making testing product and modification.



10) Our Project Complete.





## 4.6 DISSCUSSION

Once our project is fully completed, we attempt to experiment with the project for its functionality. We've found that:

### 1) About the log.

Dry log:

- 1) We found dry wood difficult to cut. It took a long time to cut.
- 2) It takes a lot of energy to suppress and causes iron to bend.
- 3) The cut wood bounces off after being cut by the saw.

Wet log:

- 1) Wet wood can be cut easily and takes a short time to cut.
- 2) Does not use much energy and the iron does not bend.
- 3) Wet wood does not bounce after cutting.

### 2) About the project for part A

A) We find that our chainsaw moving backwards while cutting wood.

The solution: We weld a 1 cm wide iron rod to our project body. So us chainsaw does not move backwards.

B) We find that our project body is difficult to move anywhere.

The solution: We used wheels to solve this problem. We welded the wheels on both the left and right legs of the project.



### 3) About the project for part B

A) We find our dust and wood scattered on the floor.

The solution: We bought plastic boards to cover dust and wood after cutting.

1. We measure the pieces of plastic board.



2. We dug a hole in our plastic board using a drill.



3. We cut our project body using drill and steel drill points.



4. After drilling a hole in our iron part, the plastic board will be placed with tape.



#### 4.7 RESULT

<b>Dry Wood</b>	<b>Type of Wood</b>	<b>Wet Wood</b>
10.3 Second	Time to finish cut (1 bar log)	5.6 second
A lot	Dust and dirt is generated	A little
Yes	Bending bodies	No
5	The amount of wood that can be cut in a minute	11

## **RESULT & DISSCUSSION**

### **PREPARED BY: AIDIEL AZIMI BIN YAHAYA**

#### **4.3 Discussion**

Once our project is fully completed, we attempt to experiment with the project for its functionality. We've found that:

##### **1) About the log.**

Dry log:

- We found dry wood difficult to cut. It took a long time to cut.
- It takes a lot of energy to suppress and causes iron to bend.
- The cut wood bounces off after being cut by the saw.

Wet log:

- Wet wood can be cut easily and takes a short time to cut.
- Does not use much energy and the iron does not bend.
- Wet wood does not bounce after cutting.

##### **2) About the project for part A**

A) We find that our chainsaw moving backwards while cutting wood.  
The solution: we welded a 1 cm wide iron rod to our project body. So us chainsaw does not move backwards.

B) We find that our project body is difficult to move anywhere.  
The solution: we used wheels to solve this problem. We welded the wheels on both the left and right legs of the project.



### 3) About the project for part B

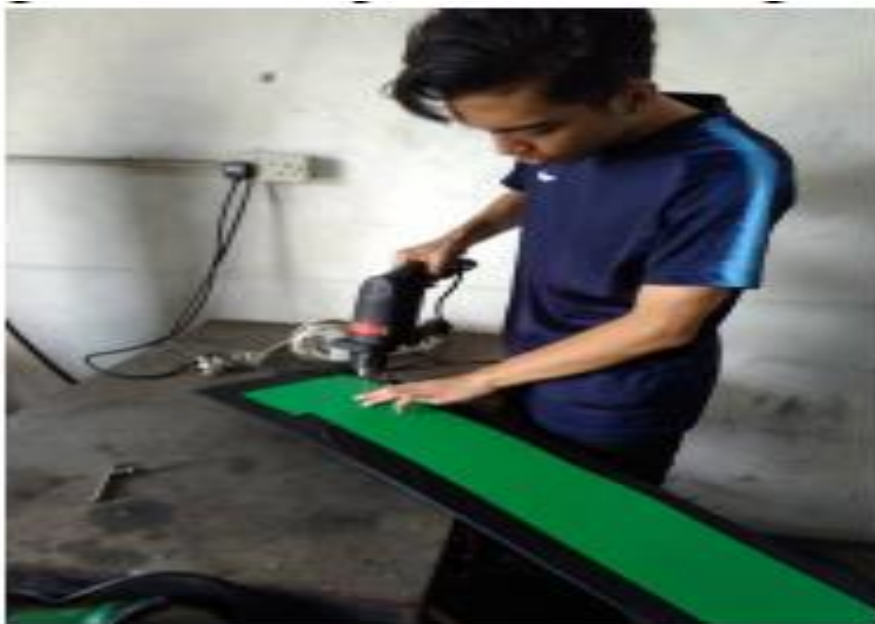
A) We find our dust and wood scattered on the floor.

The solution: we bought plastic boards to cover dust and wood after cutting.

1. we measure the pieces of plastic board



2. We dug a hole in our plastic board using a drill.



3. We cut our project body using drill and steel drill points.



4. After drilling a hole in our iron part, the plastic board will be placed with tape.



### 4.3 Result

<b>Dry Wood</b>	<b>Type of Wood</b>	<b>Wet Wood</b>
10.3 seconds	Time to finish cut(1 bar log)	5.6 second
A lot	Dust and dirt is generated	A little
Yes	Bending bodies	No
5	The amount of wood that can be cut in a minute	11

### Our Project Complete



**We test our project fo the first time**

## 4.5 FABRICATION OF PROJECT

1- In the early stages we took pre-made iron and brought it to the workshop for welding. Before welding we examine the project sketch again before starting the project. For the early stages we cut the tip of the iron to 45 degrees to allow for a smooth connection.



2- After 45-degree iron cutting, the iron-bonding process can begin. For the first step we will be welding steel to make the back frame.



3- Once we have finished the frame on the back of the project, we move on to the front of the project. The front part of the project is a bit difficult as it requires good welding.





4- After finishing the frame on the front and back. We need to put some finishing touches on the welding part of the project to look neat and detect the defects in the steel during welding. We use a grinder machine to clean the welding area. We used magic flap slip to clean the welding area.



5- Next we put a plastic board on the side of our project. We drill holes in the iron first before laying the boards.



6- We started putting wheels on our projects to make our projects easy to move around.



7- After that we started to colour our project in black.



8- Project complete.



9- We are making testing product and modification.



## **CHAPTER 5**

### **CONCLUSION & RECOMMENDATION**

#### **5.1 CONCLUSION**

A chainsaw is a portable; mechanical saw which cuts with a set of teeth attached to a rotating chain that runs along a guide bar. It is used in activities such as tree felling, limbing, bucking, pruning, cutting firebreaks in wildland fire suppression and harvesting of firewood. Chainsaws with specially designed bar and chain combinations have been developed as tools for use in chainsaw art and chainsaw mills. Specialized chainsaws are used for cutting concrete. Chainsaws are sometimes used for cutting ice, for example for ice sculpture and in Finland for winter swimming. In conclusion, this mini tree trunk machines can be used easily and safely used. Only then, our products can save users time and user-friendly. In addition, our products can facilitate daily work, especially housewives with occasional problems occasionally. Furthermore, our products are very economical as the air pressure imposed can accommodate clogged sinks. We also hope that our products will be marketed overseas because we are optimistic that our products are better than those in the market. With that, we have to work hard to achieve our dreams and expectations of our product capabilities. we are confident this dream can be achieved after questioning the people who has been used chainsaw. We believe in our successful pump-sink design to be competitive with foreign brands. However, before being marketed we need to examine all the weaknesses in our products. we will work hard to make our products safe and user-friendly. we will also ensure components in our products can run smoothly before being marketed abroad especially in the fast-growing online business.

## **5.2 RECOMMENDATION**

A chainsaw is a portable; mechanical saw which cuts with a set of teeth attached to a rotating chain that runs along a guide bar. It is used in activities such as tree felling, limbing, bucking, pruning, cutting firebreaks in wildland fire suppression and harvesting of firewood. Chainsaws with specially designed bar and chain combinations have been developed as tools for use in chainsaw art and chainsaw mills. We also hope our products will be marketed overseas because we believe our products will be better than those in the market. Therefore, we must work hard to achieve our product dreams and potentials. we believe this dream can be achieved after questioning the person using the saw. We believe in the designs we produce that can compete with foreign brands. However, before being marketed we need to examine all the weaknesses in our products. we will work hard to make our products safe and user-friendly. we will also ensure that our product components run smoothly before being marketed overseas especially in the fast growing online business.

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