POLITEKNIK MALAYSIA

SULTAN SALAHUDDIN ABDUL AZIZ SHAH

DEPARTMENT OF MECHANICAL ENGINEERING

DJJ6143: PROJECT 2

TITLE:

"SMART CAN OPENER"

SUPERVISOR NAME:

MRS. SYARIFAH NOOR BINTI DERAMAN

NAME	METRIC NO.
MUHAMAD FIRDAUS BIN MUHAMAD FAUZI	08DMP17F1079
AHMAD ZAHIN BIN ZAINAL RASID	08DMP17F1060
NURUL SABRINA BINTI MOHD SUKOR	08DMP17F1093

JUNE 2019

APPRECIATION

Thankfully to the Almighty with His grace. We have successfully completed our Final Year Project and this report to meet the requirement of each polytechnic student taking diploma. Although many challenges we face in order to complete the project and this paperwork but quoting with lots of patience, effort and struggle among group members finally we are able to complete the task.

We would like to express our deepest appreciation to all those who provided us the possibility to complete this report. Our appreciation is given to our great supervisor, Mrs. Syarifah Noor Binti Deraman, whose contribution in giving suggestions and encouragement to help us coordinate our project especially in writing this report and also during our final project.

Furthermore, we would like to acknowledge with much appreciation the important role of the staff private workshop, Mr. Kamarul who gave us the permission to use all required equipment and the necessary materials to complete the project.

Last but not least, may thanks you to our family for lots of support, friends and who has been involved directly or indirectly on the guiding the team during this project. We wish congratulate to continue our diploma.

Finally, we sincerely apologize for wrong and mistaken during the progress on this project. Hopefully this opportunity will always be our common benefits to future.

Thank you.

ABSTRACT

This report will present about the can opener. The can opener is a device that will use to open the metal can especially for the sardine can, food can and also milk can. Most cans have identical and parallel round tops and bottoms with vertical sides. The idea of fabricate of this can opener based on student creativity. This can opener will be fabricating with have the frame body that will combine with clamper to clamp the tin can. In the fabrication, there are many process involve to develop the product such as drilling, grinding, joining, measuring, gathering material, cutting material, and finishing process. This project is about design and fabricates a new product of can opener that has safety to user and more stable when it cut the metal can. Material are be used to fabrication of the can opener is a mild steel and stainless steel. In this report also that will more focus about the fabrication of this can opener. The research methodology is used and guided by the flow chart in the process of planning, production, design and testing of projects. The result by following the correct steps and procedures of the project was successfully implemented.

LIST OF CHAPTER

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

In the era of modern globalization, people are increasingly looking for time-saving products. Addition, the product can prevent injury while controlling it. In this regard, the emergence of various innovations from the people of the world together solves the problem. As a result of the 2mester project completion process, Smart Cans Opener finally became the project of choice as our end-of-year project. Seeing an increase in the use of simple technology goods, innovations could be the end of our Project Year to complete the Diploma in Mechanical Engineering.

Every student pursuing a Polytechnic study at the Ministry of Higher Education of Malaysia must create a final project prepared within one year (2 semesters) for students to be awarded a Diploma Certificate.

It is divided into 2 semesters where 4 semesters are the medium for presenting project ideas to supervisors and panels. Then, semester 5 is to realize the project. This final project is very important as it learns the ability of students to process a project with various Innovations and practice enduring knowledge throughout theoretical learning.

Automated equipment as we know it has been refined to become more sophisticated and faster so work can be done faster. These automated tools also show the modern day increase of today. The purpose of this hand is to solve and simplify the problems faced by the public in order to open the can easily and efficiently.

Today's users need something that simplifies their daily work. Therefore, we plan to create a "Smart Cans Opener" product that will help people, especially those who want to use it, such as women, industrial workers and restaurant workers. This product will be widely used today and may be further innovated in the future.

As you know, the existing can opener is irrelevant because of its sophisticated design and can only be used for one type of can. Therefore, Smart Cans Opener is a solution because of its secure design and can also be used on many types of cans. Most of them need to use an old can opener that has a lot of intelligence to use from the Smart Cans Opener. Addition, the existing equipment is poor and inefficient. So this project will solve the problem and ease the burden on the public to open the can easily. Therefore, this project is very suitable for the public as it is very safe and fast and easy to use. So this product is very relevant to use.

1.2 BACKGROUND RESEARCH

The idea to use was to create this Smart Cans Opener as we saw and observed the earlier key required to use an unsafe can opener.

We still maintain the same concept still using manpower to move. The only variant we include is a can opener that can be resized to expand and shrink. It can also hold the can stronger. In the future, it can be upgraded to a frame made of high quality steel such as 'stainless steel' with higher durability. These banners are also easy to save and no clutter.

In the current era where the country is developing, of course everyone wants to pursue in innovation technology games. Therefore, research is to identify the problem when the user is frequent when after opening the cans is touched on the finger.

In this project it combines the knowledge in connecting cans and can opener to controlling the injury during the cans process. Additionally, the project uses appropriate materials to meet the needs and reduce risks to our users or our environment.

1.3 PROBLEM STATEMENT

In the process of producing a project, a preliminary study was conducted to identify problems or weaknesses in the study:

i. The process of can opener is using traditional methods or process.

ii. Does not have good security features.

iii. The using of old methods might not be efficient at this time as cans production on the market is very high.

iv. There can be injuries on the fingers and hands when performing the cans opener activity.

1.4 RESEARCH OBJECTIVE

The purpose of this project is:

i. Helps to ease the burden of users when using can opener

ii. Users can safely open the can to avoid any injury.

iii. Make it easy for user to open cans.

1.5 RESEARCH QUESTION

In this research question, we ask a few questions that we have included. We do research on the general public knowledge of them with the existing knowledge questionnaire on the breakdown of new versions. This is to identify whether they have heard of the new version or used it before.

Furthermore, old-fashioned can opener users are often used by restaurant workers as well as the general public. This method is often used by people in the repair or repair of any goods or products. In addition, we are reviewing the benefits of this Smart Cans Opener to save time and ease of use today.

Addition, we are looking into issues that users are having with using the old spare parts. For example, in the long run it is necessary to open the can. Next, get to know their ideas and their willingness to buy and use this Smart Cans Opener if we can realize the creation of our innovative can opener.

We also, investigate the frequency of our society today with the sophisticated Smart Cans Opener. This will help us understand the real needs of society today to set Smart Cans Opener usage rates among consumers.

We also set reasonable prices and draw public opinion on the rational value of the ringgit. In addition, we are very concerned about the security aspects of this project's security creation with the use of the old version of Smart Cans Opener or Cans Opener.

Finally, we are looking into the difficulty of fixing products quickly, especially when we have time to fix them. We also ask for their opinion on the suitability of this product for use at home and in the restaurant.

1.6 SCOPE OF THE RESEARCH

The project is smart can opener. It is suitable for kitchen, restaurant and stall. This project use mechanical as a mechanism to running the lifting scissor to cut off top of can. It is also to provide security to the user. This project have:

i. Used by hawkers stall and at home use except for children.

ii. Can be used for various sizes of casting cover of cans.

iii. No need for skilled manpower to do this activity.

This project can be marketed in Malaysia. There are many advantages to the projects we have done that are different from the existing ones. The device is designed with environmentally friendly materials.

1.7 IMPORTANCE

Each study has some interest in either the researcher or the involved parties. The importance of a study has a great implication in improving a problem or situation for a study conducted. Therefore, this research also has some interests that can be utilized by certain parties in raising the level of technology development in the country.

- Find out of the overall cost of the material for installation and purchase of materials.
- Find out of the prototype size and its dimensions.
- Knowing the type of materials used.
- Identify strategic designs for spanners.
- To improve working skills.
- To improve communication skills and train yourself to work in groups.
- To learn how to deal with and solve problems and correct past mistakes.

1.8 DEFINITION OF OPERATION

The project we did was based on a prototype that uses stainless steel and harden steel to make the other part and in the prototype, it also contains aluminum material. It has a handlebar and a rotary seat to open the can. In addition, it has a small wheel to facilitate the opening of the can. Small size makes it easy to carry it anywhere.

We also design this wrench with an appropriate and relevant design so that all segments of society can use it easily and efficiently. With this banner it will attract women to do all the work on its own and not have to ask for help from men as it is safer.

This is a great help in managing our daily work and can speed up the work in the kitchen. Current project innovations should be used to facilitate all our daily affairs.

1.9 CHAPTER SUMMARIES

In conclusion, this introductory chapter will help us and others understand many of the concepts and descriptions of this project. For example, in the background of this study, we explain where the idea of this project is to generate innovation and innovation in this tool. In addition, we can also identify and understand the past problems that led to the creation and innovation of this can opener.

Therefore, it can be improved and expanded so that the problems of previous projects can be minimized. In addition, we are investigating the goals or objectives of this project more clearly and for the benefits that will be used appropriately by users of the spare parts. We also address the questionnaire by making the questionnaire available to the public, with the majority of women, industry workers and restaurant workers.

Addition, we also provide the scope of the study, in terms of users, how it is used and the mechanism works more specifically and carefully to illuminate the scope of the study. We also explain the importance of this study as a medium for Clancy in every detail of this study having a specific purpose and relevance to the chapters with other chapters.

Finally, in terms of the operations term on how canned opener we create with small innovation and innovation work or operate. It will explain the function of this can opener.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

A literature review is a body of text that aims to review the critical points of current knowledge and or methodological approaches particular topic. Literature reviews are secondary on a sources, and as such, do not report any new or original experimental work.

Most often associated with academic-oriented literature, such as thesis, a literature review usually precedes a research proposal and results section. Its ultimate goal is to bring the reader up to date with current literature on a topic and forms the basis for another goal, such as future research that may be needed in the area. A well- structured literature review is characterized by a logical flow of ideas: current and relevant references with consistent, appropriate referencing style: proper use of terminology and an unbiased and comprehensive view of the previous research on the topic.

The report that we want to be produced needed a few factor that should be taken consideration until that project implemented. To get a quality project result, we need to study about the type of material, design, components that we used, framework installation, installation method and maintenance, level of product safety, structural strength, project size and so on that we need make it and consider result that we get. This is all ensure that no any problems would arise during the completion or even when presenting the project.

Hence, systematic and detailed planning must be arranged for produce a complete and perfect project. First step that we need made it, was design daub (sketching) forget the real image of machine that we want to be produced. Due to this, the work design and study that we made is a continuing process and it involving problem solving activity creatively namely which is known as literature study.

2.2 Concept / Theory

This smart can opener is automatic to increase the production of the industry in the shortest time. This product can certainly help users the right place to use this can opener. Users need to use this scan opener the right way. The use of this can opener does not endanger itself but parents need can opener to open the can.

The smart can opener can use all age but kids must be monitored by parent to using multipurpose can opener. Solve problems such as work in the kitchen or monitor of young children if they use this. Besides, users can also save time to complete open the can, especially short time in kitchen.

Also, this smart can opener is safer than the previous can opener. it can also open different types of cans in a short time. In addition, it can reduce injury by opening up cans in a short time.

2.3 Design Study

The design of a project is very important in the project manufacturing process. The resulting design should include some aspects that need to be taken into account physically, size nut and size blade of cutter.

The production of new products should conform to all aspects of safety, attractiveness and others. The study has done some additional materials in this project to complement the project. These additional materials are selected according to the specifications appropriate to the construction of this project. This project is absorbed with important values such as safety, attractive design, durability, and reasonable price.

To produce this multipurpose can opener we use various of steel material so it is light, strong on the outside and not rusty. We also use high-quality iron on the inside of the blade cutter to cut a piece top of can and the grip to grip the can to stable when the blade cutting to opening the can.

2.3.1 Stainless Steel

Stainless steel is an iron-containing alloy a substance made up of two or more chemical elements used in a wide range of applications. It has excellent resistance to stain or rust due to its chromium content, usually from 12 to 20 percent of the alloy. There are more than 57 stainless steels recognized as standard alloys, in addition to many proprietary alloys produced by different stainless steel producers. These many types of steels are used in an almost endless number of applications and industries: bulk materials handling equipment, building exteriors and roofing, automobile components (exhaust, trim/decorative, engine, chassis, fasteners, tubing for fuel lines), chemical processing plants (scrubbers and heat exchangers), pulp and paper manufacturing, petroleum refining, water supply piping, consumer products, marine and shipbuilding, pollution control, sporting goods (snow skis), and transportation (rail cars), to name just a few.

It is used in a variety of food handling, storing, cooking, and serving equipment—from the beginning of the food collection process through to the end. Beverages such as milk, wine, beer, soft drinks and fruit juice are processed in stainless steel equipment. Stainless steel is also used in commercial cookers, pasteurizers, transfer bins, and other specialized equipment. Advantages include easy cleaning, good corrosion resistance, durability, economy, food flavor protection, and sanitary design.

Stainless steels come in several types depending on their microstructure. Austenitic stainless steels contain at least 6 percent nickel and austenite carbon-containing iron with a face-centered cubic structure and have good corrosion resistance and high ductility (the ability of the material to bend without breaking). Ferritic stainless steels (ferrite has a body-centered cubic structure) have better resistance to stress corrosion than austenitic, but they are difficult to weld. Martensitic stainless steels contain iron having a needle-like structure.

Duplex stainless steels, which generally contain equal amounts of ferrite and austenite, provide better resistance to pitting and crevice corrosion in most environments. They also have superior resistance to cracking due to chloride stress corrosion, and they are about twice as strong as the common austenitic. Therefore, duplex stainless steels are widely used in the chemical industry in refineries, gas-processing plants, pulp and paper plants, and sea water piping installations.

2.3.2 Stainless Steel Manufacturing Process

Most of the world stainless steel production is produced by the following processes.

- EAF (Electric Arc Furnace) in which stainless steel scrap, other ferrous scrap and ferro alloys (Fe Cr,Fe-Ni, Fe Mo, Fe Si ...) are melted. The molten metal is then poured into a ladle and transferred into the AOD
- AOD (Argon Oxygen Decarburization) allows the removal of carbon in the molten steel and other composition adjustments to achieve the desired chemical composition of the steel
- CC (Continuous Casting) in which the molten metal is solidified into slabs (typical section is 20 cm thick and 2 m wide) for flat products or blooms (sections vary widely but 25cmx25cm is about the average).
- HR (Hot Rolling): The slabs and blooms are reheated in a furnace and then hot rolled. Hot rolling reduces the thickness of the slabs to produce about 3mm thick coils. Blooms on the other hand are hot rolled into bars (that are cut into lengths at the exit of the rolling mill) or wire rod which is coiled.
- CF (Cold finishing): This is a very simplified overview.

Hot rolled coils are pickled in acid solutions to remove the oxide scale on the surface, then subsequently cold rolled (Sendzimir rolling mills), annealed in a protective atmosphere, until the desired thickness and surface finish is obtained. Further operations such as slitting, tube forming, etc. can be carried out in downstream facilities.

Hot rolled bars are straightened, then machined to the required tolerance and finish.

Wire rod coils are subsequently processed to produce

- cold finished bars on drawing benches
- fasteners on boltmaking machines
- wire on single or multipass drawing machines

2.3.3 Aluminium

Aluminium offers a rare combination of valuable properties. It is one of the lightest metals in the world: it's almost three times lighter than iron but it's also very strong, extremely flexible and corrosion resistant because its surface is always covered in an extremely thin and yet very strong layer of oxide film. It doesn't magnetize, it's a great electricity conductor and forms alloys with practically all other metals.

Aluminium can be easily processed using pressure both when it's hot and when it's cold. It can be rolled, pulled and stamped. Aluminium doesn't catch fire, it doesn't need special paint and unlike plastics it's not toxic. It's also very pliable so sheets just 4 microns thick can be made from it, as well as extra thin wire. The extra-thin foil that can be made from aluminium is three times thinner than a human hair.

Since aluminium easily forms compounds with other chemical elements, a huge variety of aluminium alloys have been developed. Even a very small amount of admixtures can drastically change the properties of the metal, making it possible to use it in new areas. For example, in ordinary life you can find aluminium mixed with silicon and magnesium literally on the road, i.e. in the aluminium alloy wheels, in the engines, chassis and other parts of modern automobiles. As for aluminium zinc alloy, chances are you might be holding it in your hands right now as it's this alloy that's widely used in the production of mobile phones and tablet PCs. In the meantime, scientists keep developing new aluminium alloys.

The modern construction, automotive, aviation, energy, food and other industries would be impossible without aluminium. In addition, aluminium has become a symbol of progress: all cutting edge devices and vehicles are made from aluminium.

2.3.4 Hardened Steel

Hardened steel is a type of medium to hard plain carbon steel that has undergone heat treatment, quenching and further reheating. Components made of hardened steel have a hard exterior casing and a robust core, and include arbors, axles, link components, driving pinions, camshafts and cardan joints. Application areas of components made from hardened steel include transportation, energy generation and general mechanical engineering. Types of hardened steel include Z60CDV14, Sandvic 12C27, CPM440V and ATS34.

Hardened steel is resistant to wear, rough usage, high-impact pressure and shock. It is used to make power shovels, steel balls, nozzles, surgical instruments, crushers and plates for rock-processing. Steel with a sufficient amount of chromium that undergoes heat treatment hardens to form chromium carbide particles, which increase the wear resistance of the steel alloy. Hardened steels with a greater concentration of carbon contain a higher amount of chromium carbide and exhibit enhanced wear-resistance properties.

According to "Surface Engineering for Corrosion and Wear Resistance," corrosion costs the U.S. billions of dollars annually by affecting materials and metallic surfaces used in industries. Hardened steel is resistant to corrosive chemical environments, potable water and atmospheric corrosion. Hardened steel is applied with corrosion-resistant coating to further enhance its resistive properties.

2.3.5 Gas Metal Arc Welding (Mig - Metal Inert Gas Welding)

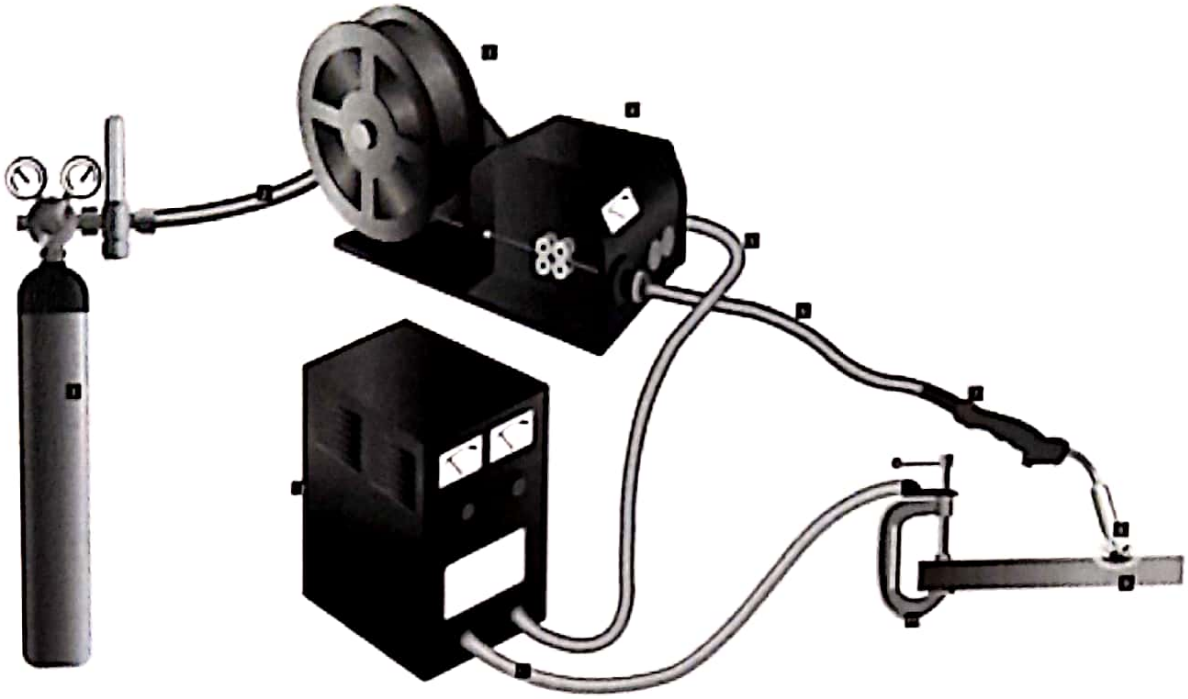
Gas metal arc welding (GMAW), sometimes referred to by its subtypes metal inert gas (MIG) welding or metal active gas (MAG) welding, is a welding process in which an electric arc forms between a consumable MIG wire electrode and the workpiece metal(s), which heats the workpiece metal(s), causing them to melt and join. Along with the wire electrode, a shielding gas feeds through the welding gun, which shields the process from contaminants in the air.

The process can be semi-automatic or automatic. A constant voltage, direct current power source is most commonly used with GMAW, but constant current systems, as well as alternating current, can be used. There are four primary methods of metal transfer in GMAW, called globular, short-circuiting, spray, and pulsed-spray, each of which has distinct properties and corresponding advantages and limitations.

Originally developed in the 1940s for welding aluminium and other non-ferrous materials, GMAW was soon applied to steels because it provided faster welding time compared to other welding processes. The cost of inert gas limited its use in steels until several years later, when the use of semi-inert gases such as carbon dioxide became common. Further developments during the 1950s and 1960s gave the process more versatility and as a result, it became a highly used industrial process. Today, GMAW is the most common industrial welding process, preferred for its versatility, speed and the relative ease of adapting the process to robotic automation. Unlike welding processes that do not employ a shielding gas, such as shielded metal arc welding, it is rarely used outdoors or in other areas of moving air. A related process, flux cored arc welding, often does not use a shielding gas, but instead employs an electrode wire that is hollow and filled with flux.

Process schematic diagram for MIG/MAG, FCAW and MCAW

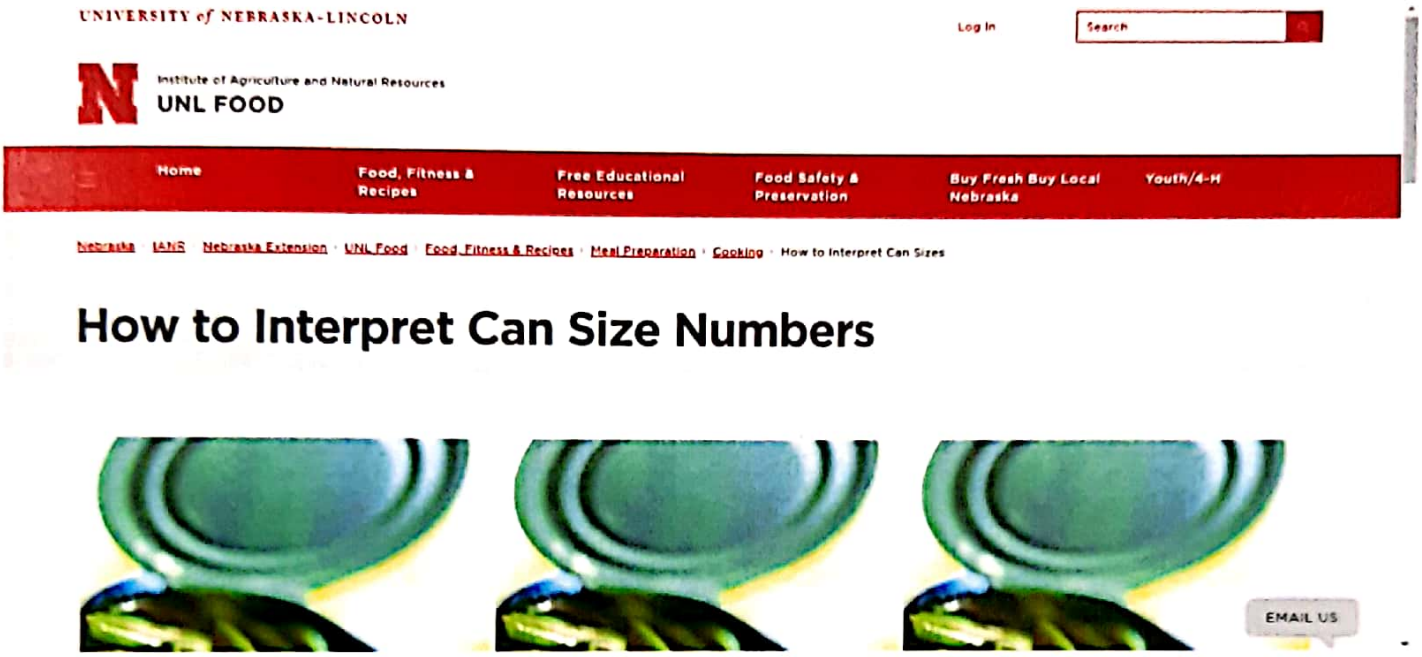
■ Gas cylinder, ■ Gas hose, ■ Continous wire, ■ Wire feed unit, ■ Power cable, ■ Torch conduit, ■ Welding torch, ■ Arc, ■ Workpiece, ■ Earth clamp, ■ Return cable, ■ Power source

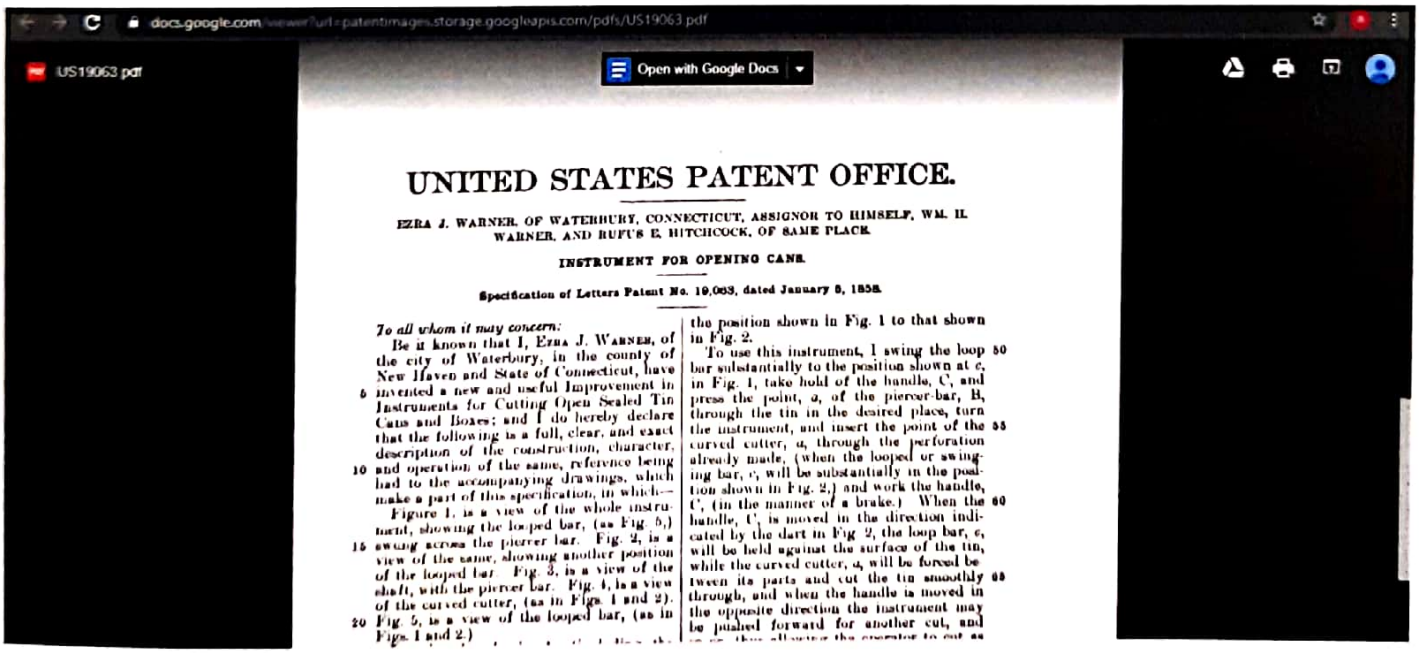


MIG - METAL INERT GAS WELDING

2.4 Previous Research

Previous studies mostly show varying sizes of cans. This can opener also still requires manpower and a long time to find a spanner that is compatible with nut and bolts. With that can opener it takes a long time to use.





2.5 Chapter Summaries

This literature review is very important in the project construction process. Through this literature review, we can learn about the factors that affect the construction of this can opener. For example in terms of improvements to the old structure, the time taken, the attraction of the consumer and so on. This can opener also needs to take account of safety and durability.

Additionally, this project is crucial for graduates to be ready for the current challenges by creating better, durable and easy to manage product. Must be skilled graduates not only in terms of academic but also in practical terms in tandem with the present-day image wishing to produce innovative and creative graduates. Through this project, graduates can communicate with each other to solve problems that arise during the construction process of the project.

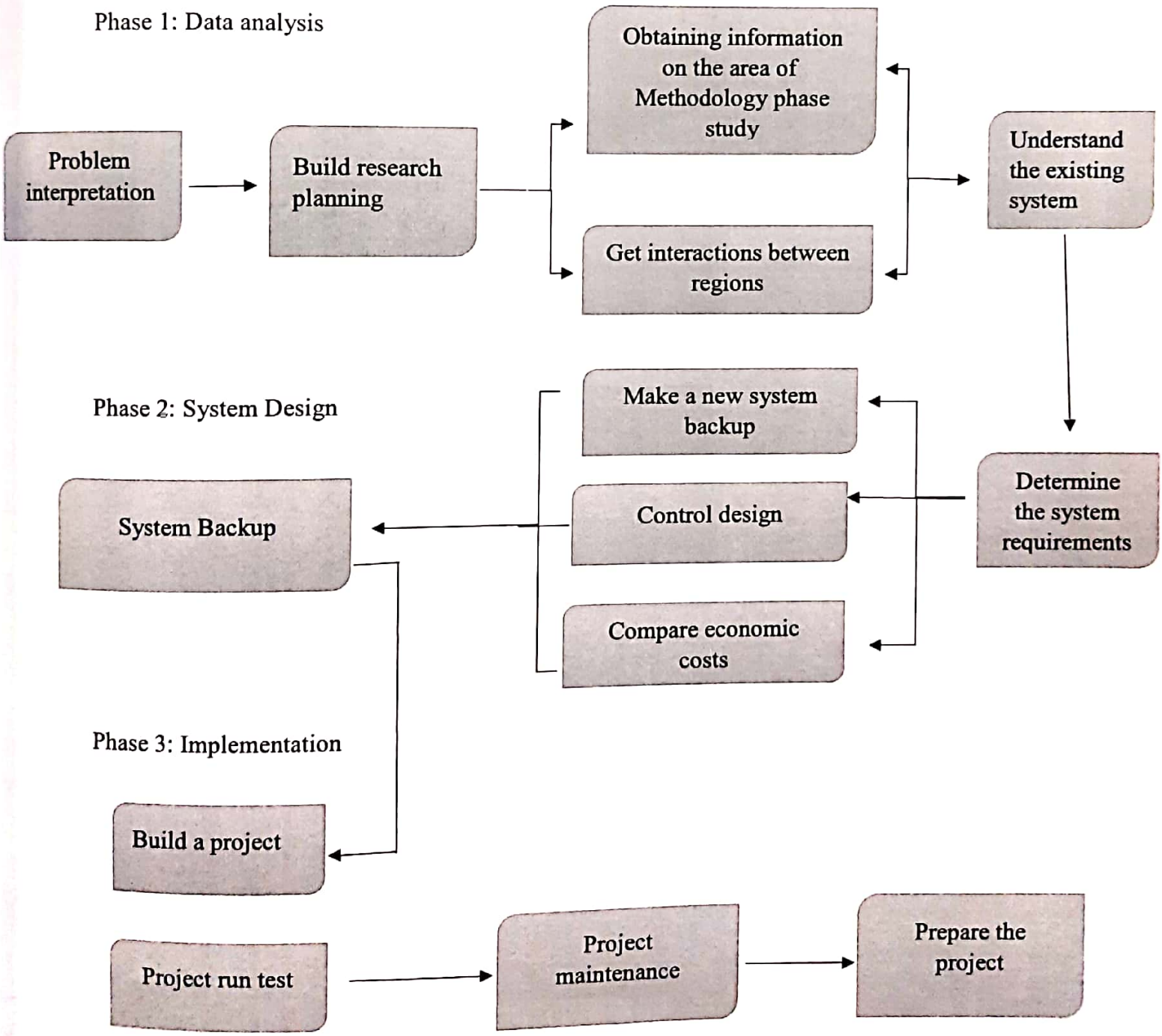
This literary study can also help compare products already in the market with the products we will build. We are able to identify the shortcomings that need to be added as well as we can build innovative and appropriate projects as well as safe use by users. In addition, can also study the materials that are suitable for use in the projects we build well.

CHAPTER 3: METHODOLOGY

3.1 INTRODUCTION

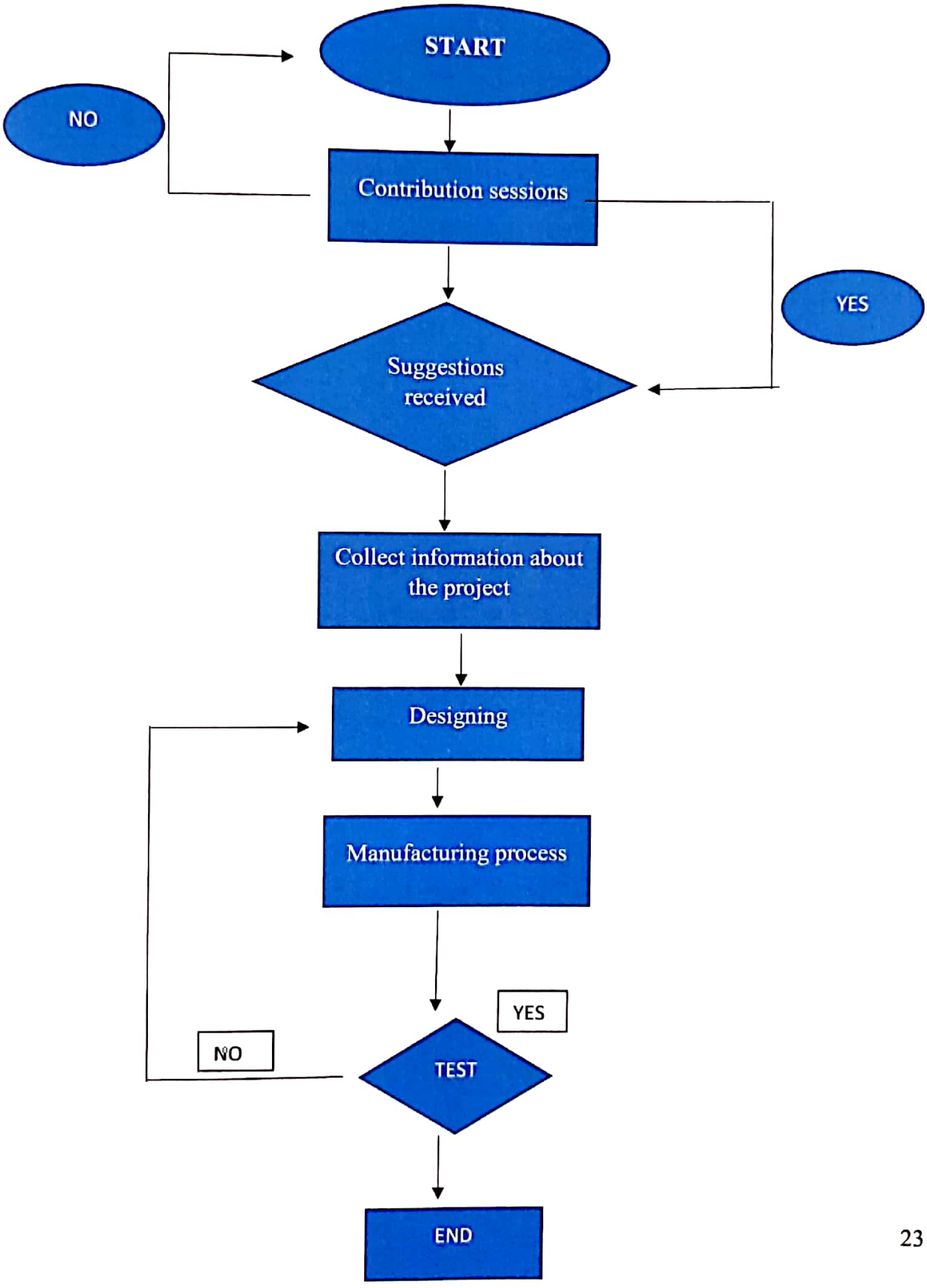
This chapter will cover the details explanation of methodology that is being used to make this project complete and working well. Many methodology or findings from this field mainly generated into journal for others to take advantages and improve as upcoming studies The method is use to achieve the objective of the project that will accomplish a perfect result. In order to evaluate this project, the methodology based on System Development Life Cycle (SDLC), generally three major step, which is planning, implementing and analysis. All the methods used for finding and analysing data regarding the project related.

PHASES OF METHODOLOGY



Project Description and Plan of Operation

Flow Chart



3.2 DATA COLLECTION METHOD

Data collection is a stage in any area of study. It is the process of gathering and measuring information on targeted variables in an established systematic way, which enables to answer relevant questions and evaluate outcomes. At this stage, we planned about the projects requirements, literature studies and schedule to get more information in this study. All the materials are collected from journal, texts book and research papers collected from libraries and Internet. Within the data collection period, we have found the study about the dustbin and compress theory in the Internet and do some research about the project related Once we got the project manual, we tried to find out the mechanical and electronic component, their materials and some of equipment to be used. While methods vary by discipline, the emphasis on ensuring accurate and honest collection remains the same. The goal for all data collection is to capture quality evidence and allows the building of a convincing and credible answer to questions that have been posed. The ways we got our data is where by after several discussion, brainstorming and exchanging the idea with our supervisor.

3.3 RESEARCH DESIGN

The design of this study is done with just a sketch before starting the project. The purpose of designing this concept is to get an initial picture of the project being created. Design each layout to differentiate the advantages and disadvantages of each project sketch.

3.4 DESIGN INVENTOR

3.4.1 HOLDER

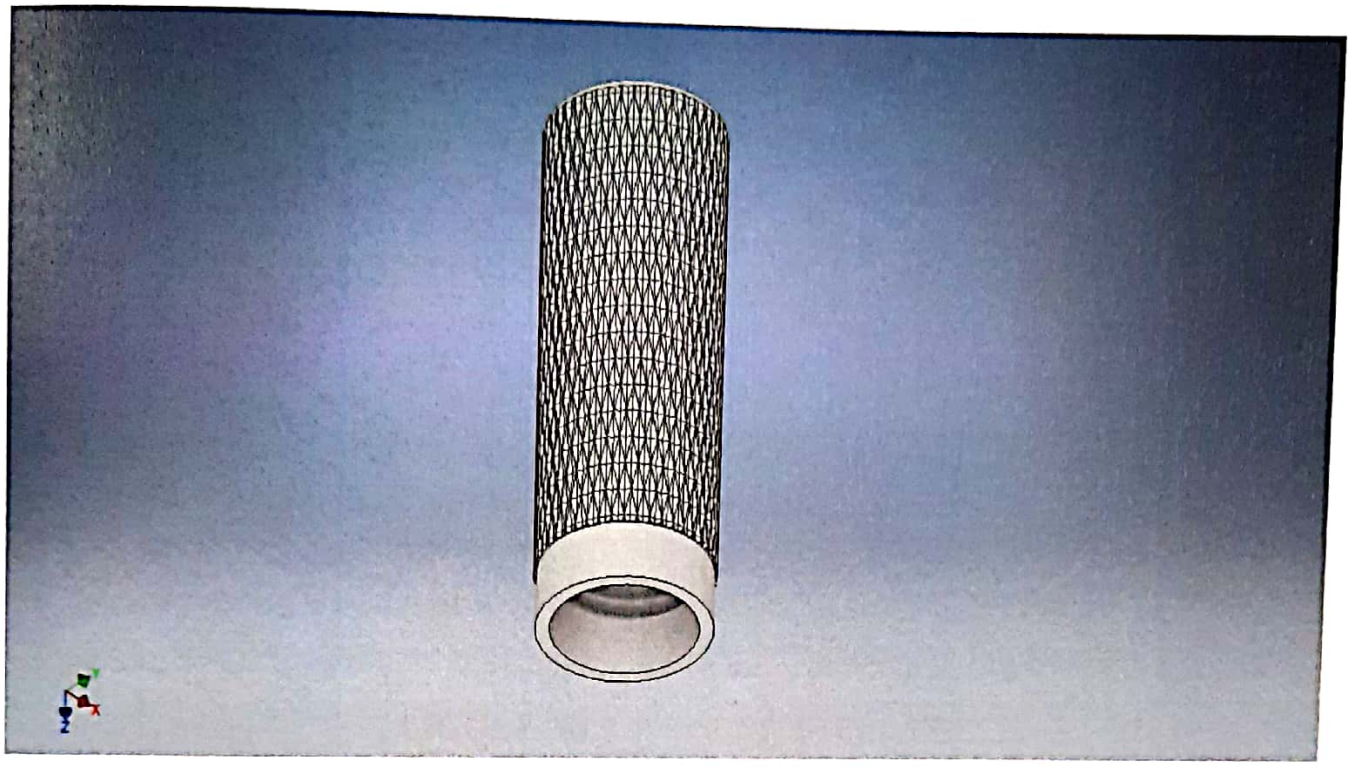


FIGURE 3.4.1: HOLDER

Characteristics:

- Place holder
- Pressing the can from above

3.4.2 MOVING STEEL TEETH

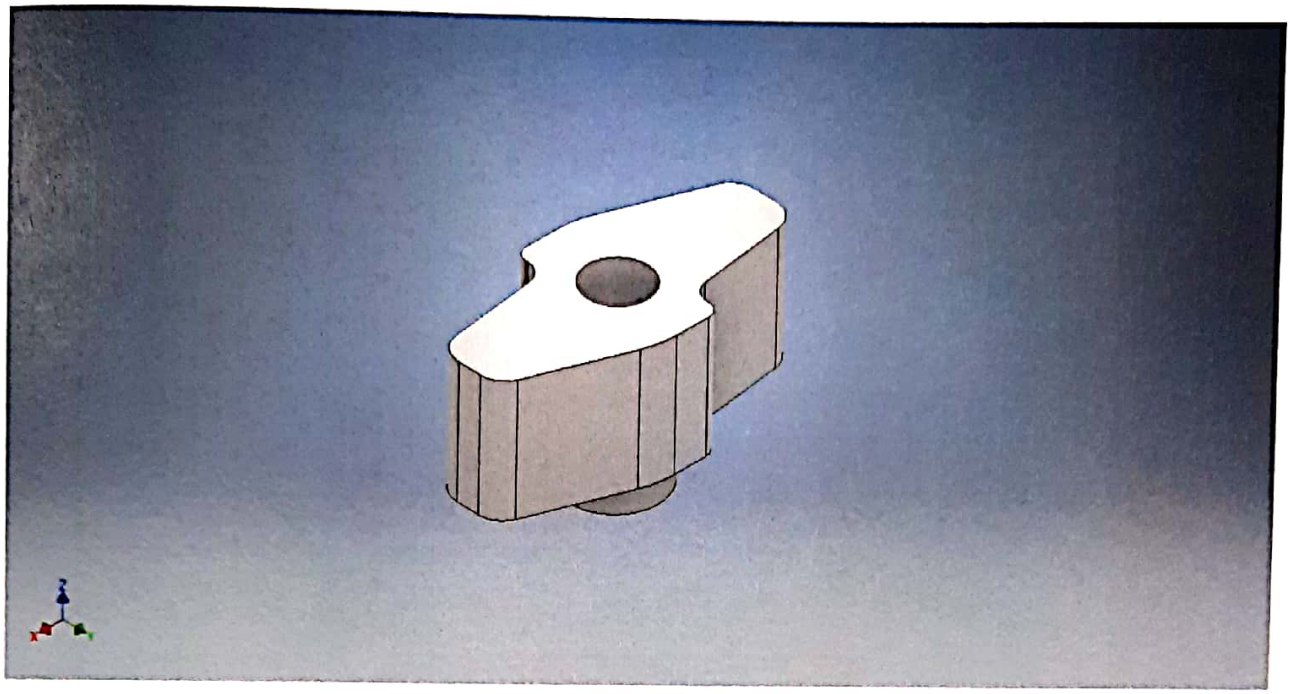


FIGURE 3.4.2: MOVING STEEL TEETH

Characteristics:

- Easy to moving.

3.4.3 STEEL TEETH

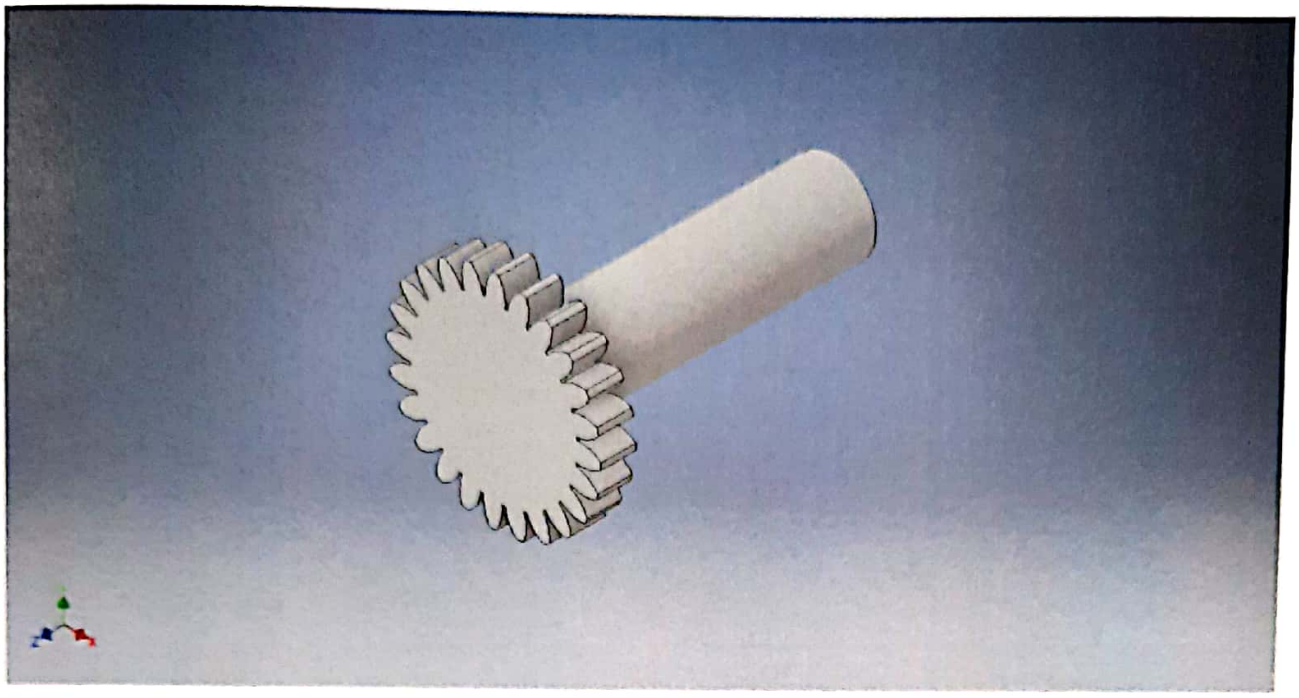


FIGURE 3.4.3: STEEL TEETH

Characteristics:

- To grasp the surface of the can.

3.4.4 CAN CUTTER

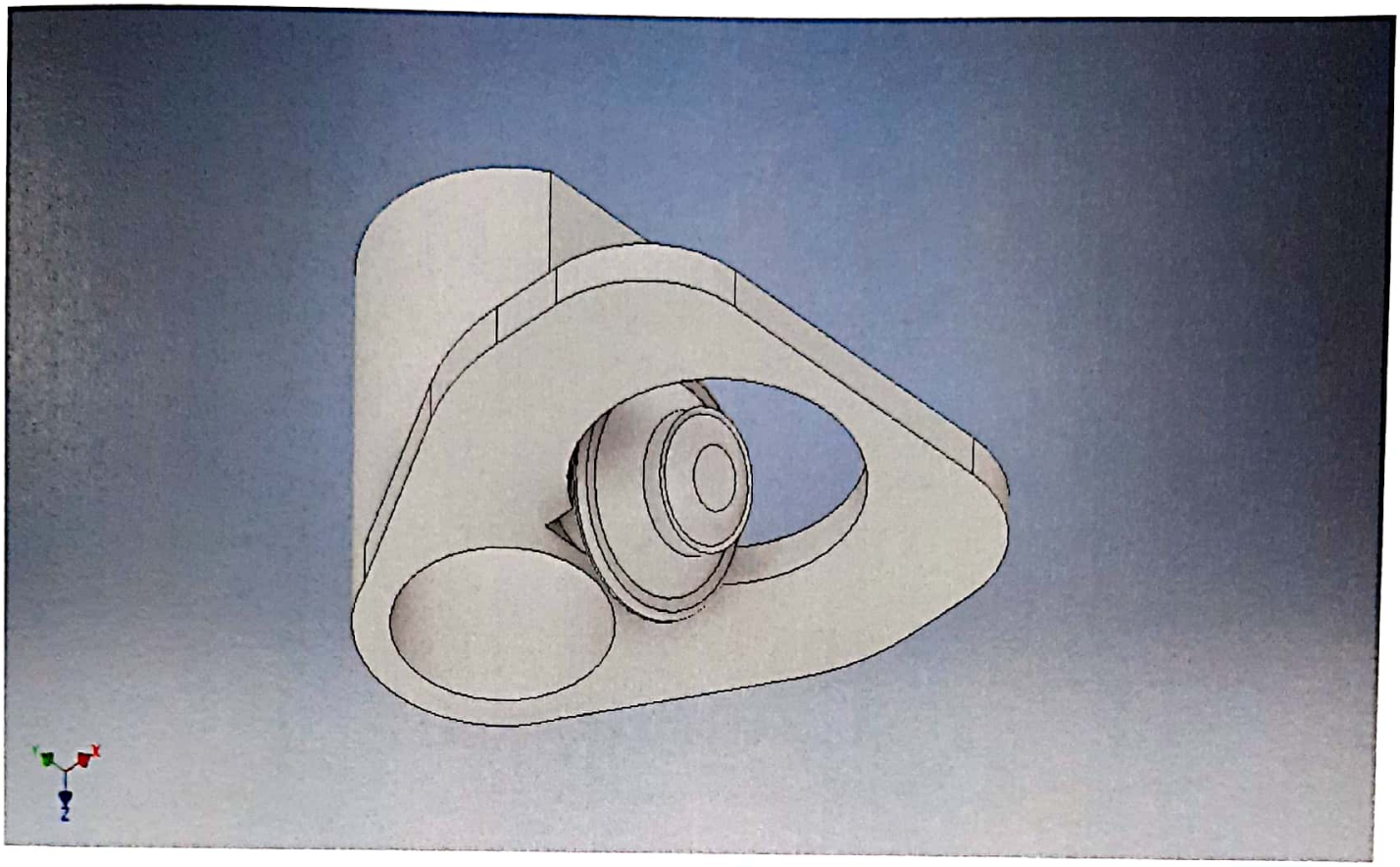


FIGURE 3.4.4: CAN CUTTER

Characteristics:

- Cut the surface of the can

3.4.5 INNER PART

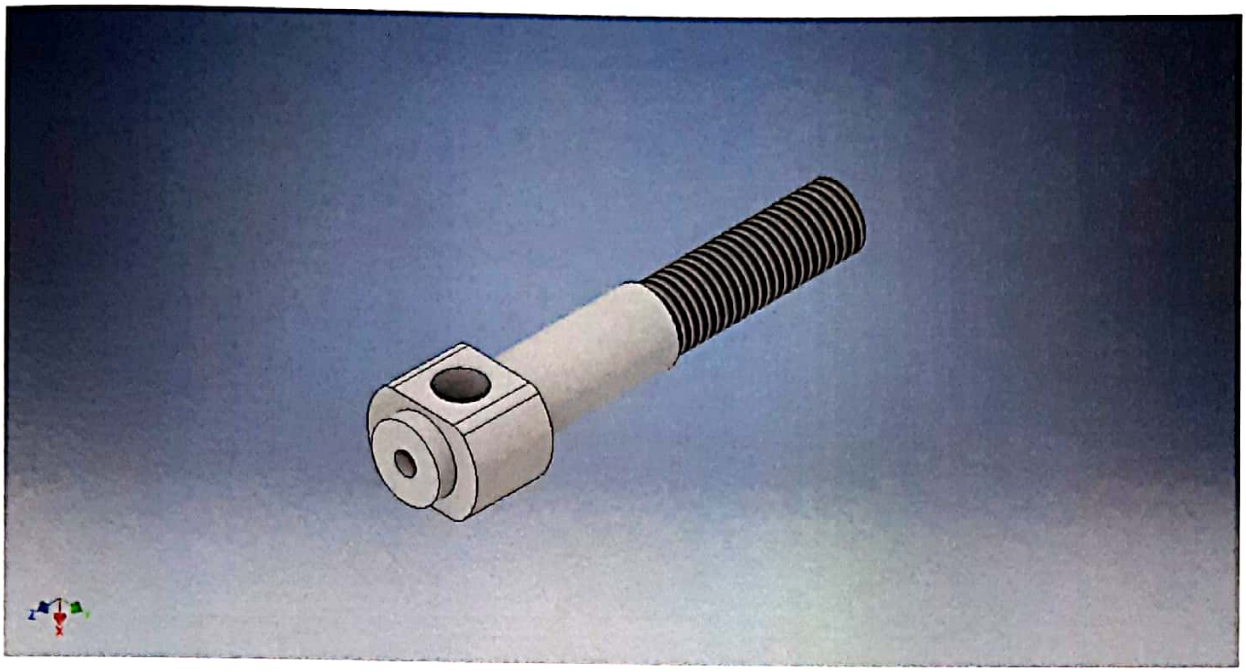


FIGURE 3.4.5: INNER PART

Characteristics:

- Design framework

3.4.6 FINAL

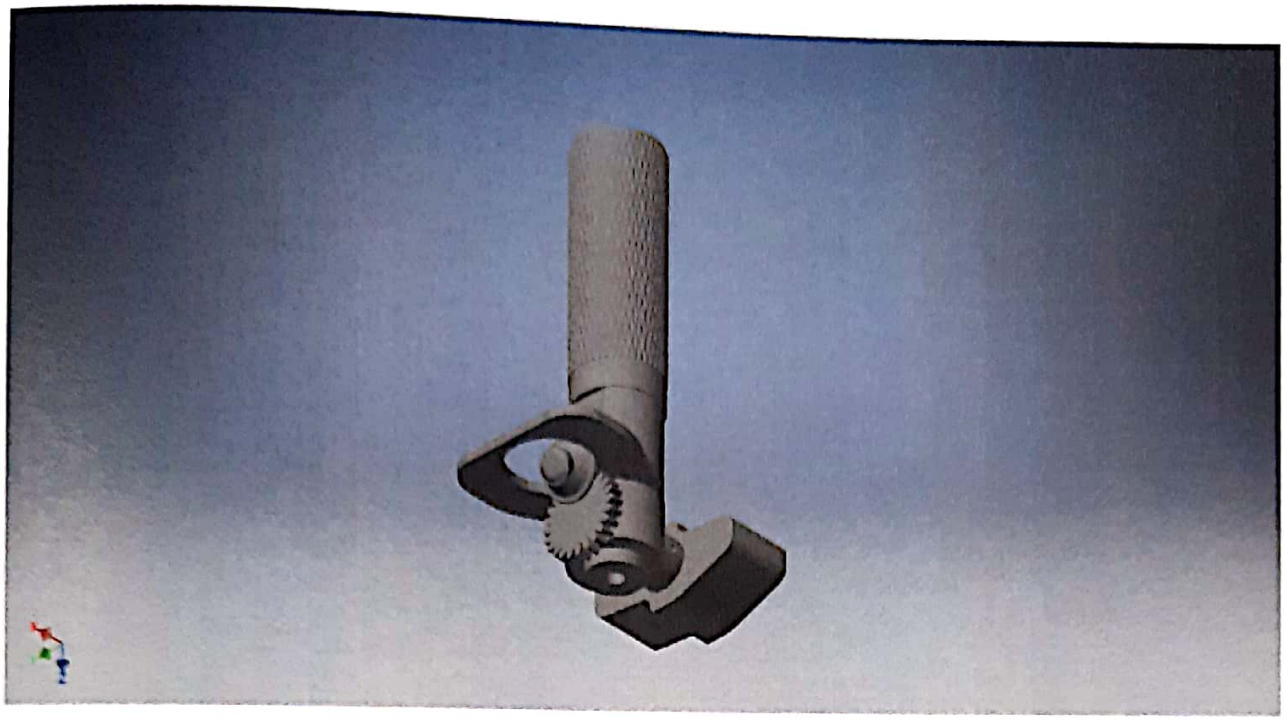


FIGURE 3.4.6: FINAL

I) Completed sketches

3.5 RESULT

FIGURE 3.5.1 RESULT

3.6 COMPARISON

PREVIOUS	INOVATION
	
OLD VERSION CAN OPENER	**SMART CAN OPENER**
➢ The time it takes to open a long time ➢ Not safe to use ➢ Rusty ➢ Open a can with no beauty ➢ Non - durable	➢ Long lasting ➢ It's not rusty ➢ Saves time ➢ Open the can with a more beautiful finish ➢ Safe to use ➢ Easy to bring

3.7 MATERIAL USAGES

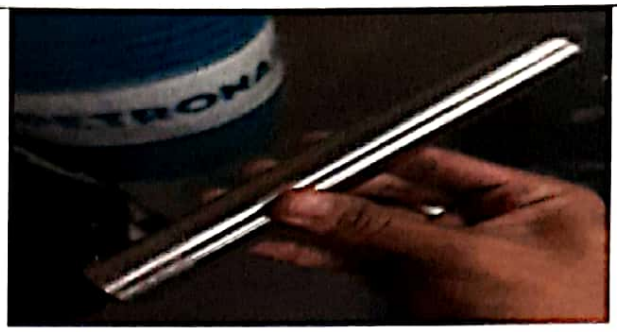
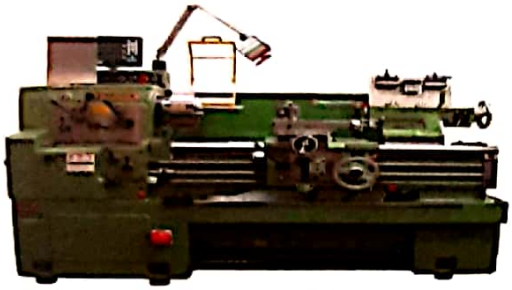
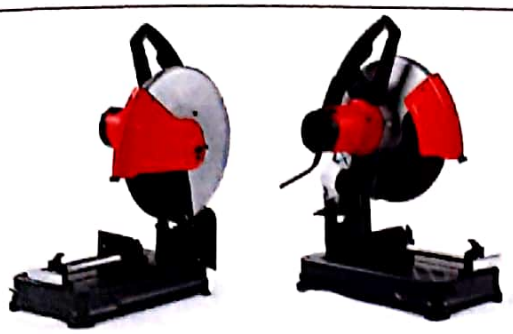
MATERIALS	EXAMPLE IMAGES
Stainless Steel	
Screw Stainless Steel	
Aluminium	
Steel Cutter	
Harden Steel	

FIGURE 3.7.1: MATERIAL USAGES

3.8 TOOLS USED

TYPE OF EQUIPMENT	FUNCTIONS
 Drilling Machine	Used to cut holes into or through metal, wood, or other materials. Drilling machines use a drilling tool that has cutting edges at its point. They can perform operations other than drilling, such as countersinking, counter boring, reaming, and tapping large or small holes. Because the drilling machines can perform all of these operations, this chapter will also cover the types of drill bits, took, and shop formulas for setting up each operation.
 Lathe Machine	Used to remove metals from a workplace to give a desired shape and size. In other words it is a machine that is used to hold the workplace to perform various metal removing operations such as turning, grooving, chamfering, knurling, facing, forming other with the help of tools.
 Welding Machine	With proper technique, to fuse two pieces of metal together
 Drill Machine	Used for making round holes or driving fasteners.



We have been studying the old can opener and found there is a problem opening the can. Therefore, we have innovated to make it easier to open cans without the need for high energy and far from injury when opening cans. A good tool design can be created by studying each material that will be used. To ensure the design of this tool works properly, component revisions are required. The material used must meet the desired characteristics such as durability, lightweight and easy to obtain.

FIGURE 3.8.1: TOOLS USED

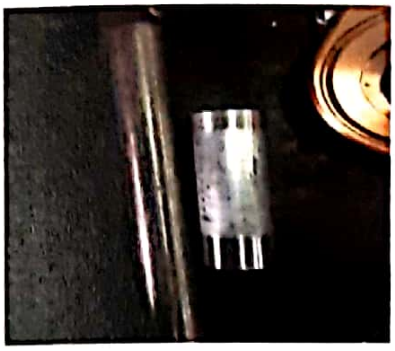
3.9 COSTING

NO	ITEMS	COST(RM)
1	Stainless steel	40
2	Aluminium	30
3	Screw stainless steel x1	10
4	Steel cutter	50
5	Harden steel	60
6	Side wages	310
TOTAL		**500**

3.10 FABRICATION

- Identify component parts that you want to change or improve

- Make cutting stainless steel and aluminium type using 'Circular Saw Machine' according to the designated size.



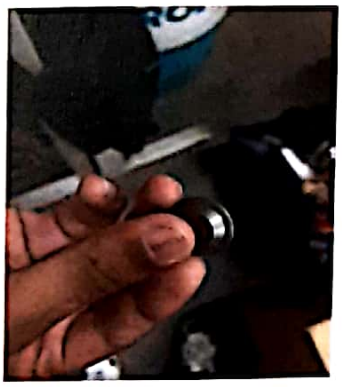

- Stainless steel will be lathe using' lathe machine' according to size and do the holes.

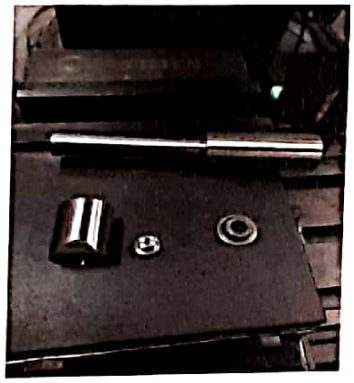




- Aluminum will be lathe to make the handle and holes.

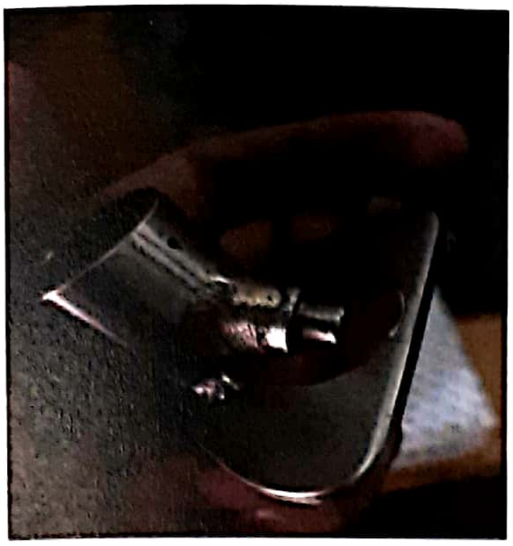
- Take the cutting can to combine at the stainless steel.

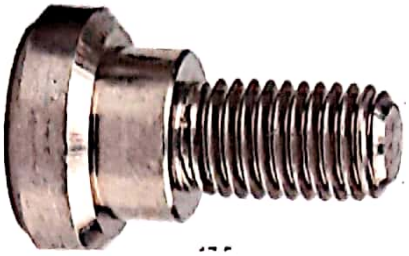




- Combine to all component and welding the screw stainless steel using the' welding machine'.

- Cutting the plate stainless steel and welding at the components with screw stainless steel.

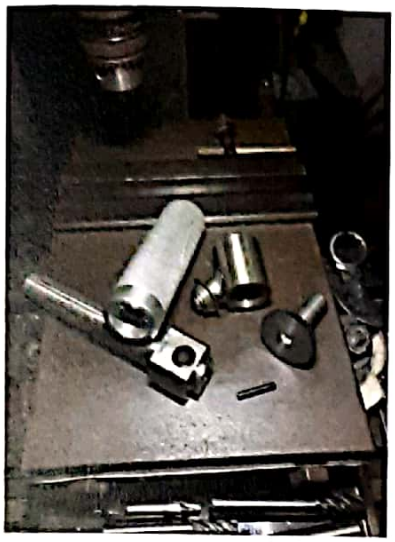




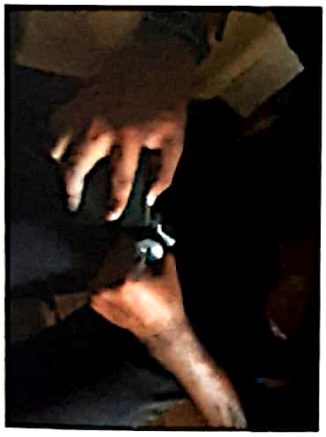
- Drill the harden steel using the 'drilling machine' to make teeth.

- Make the tools moving the cutting can using the material aluminium and combine to teeth steel.

- Installation to all components.

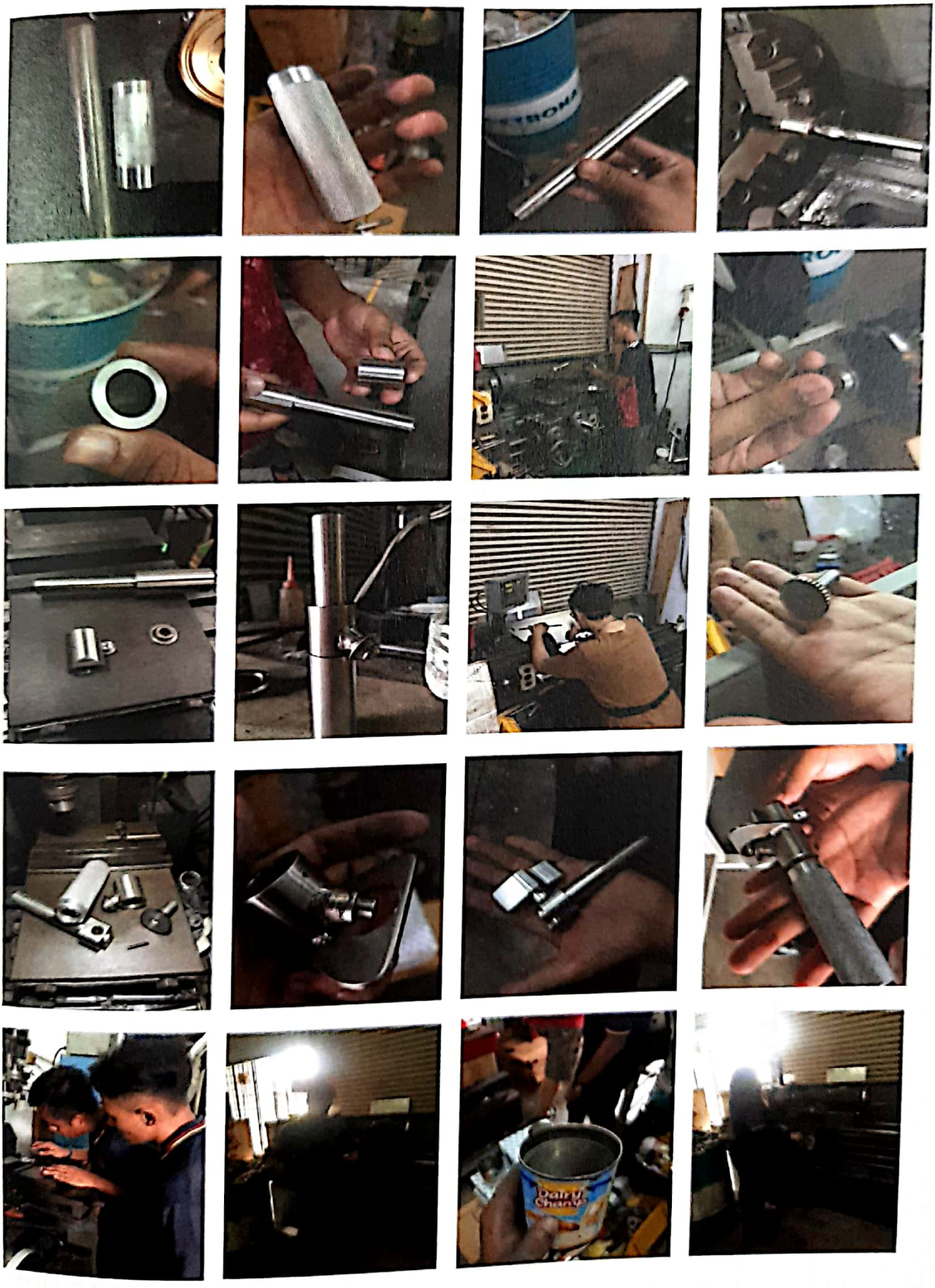


- Time to tidy up the project.

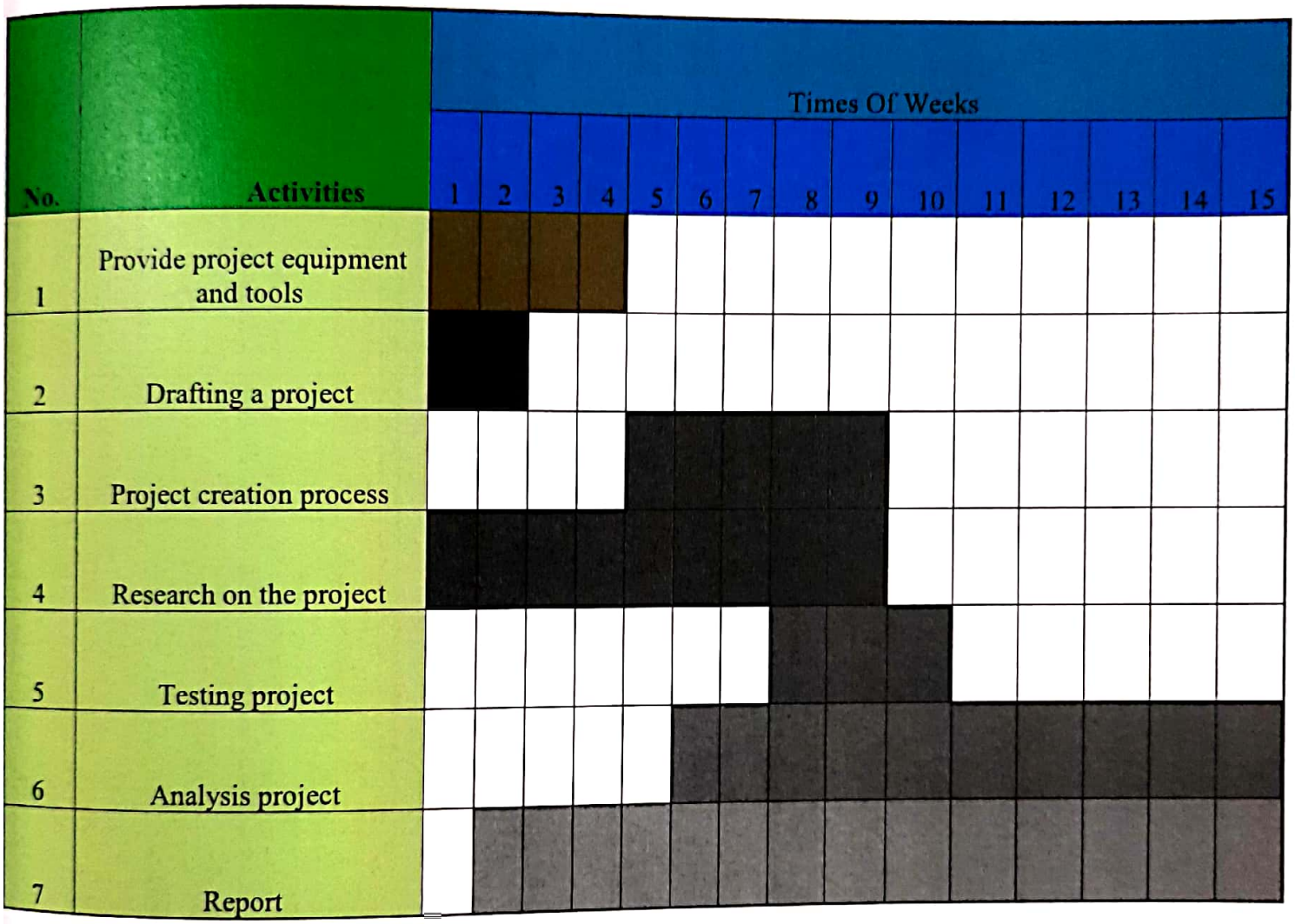


- Lastly to testing the project for a cut can.

3.10.1 Proof of project implementation



3.11 GANTT CHART



POLITEKNIK MALAYSIA

SULTAN SALAHUDDIN ABDUL AZIZ SHAH

DEPARTMENT OF MECHANICAL ENGINEERING

DJJ6143: PROJECT 2

TITLE:

"SMART CAN OPENER"

CHAPTER 4 & 5

SUPERVISOR NAME:

MRS. SYARIFAH NOOR BINTI DERAMAN

NAME	MATRIX NO.
MUHAMAD FIRDAUS BIN MUHAMAD FAUZI	08DMP17F1079

JUN 2019

CHAPTER 4

4.1 CHAPTER INTRODUCTION

In this section, we are discussing the findings of the project that we have done thoroughly. The whole chapter is closely linked to the results we have achieved over the course of one year of the project. In fact, we also get advice from lecturers to understand the concepts we are working on.

In addition, we also look into markets that are relevant to the projects we create to ensure that these project are in line with consume and market needs. Various challenges and assumptions we have made to ensure this project can be completed over a given period of time. Some important phases also play an important role in our projects such as coarse presentation of ideas to supervisors, discussions about the problems we face and the timing of a process.

There are also some of the problems we face as designs that are not suitable for the market, unsuitable materials, cost over budget and relatively limited time. This is a bit of an impression on us to complete this project perfectly to meet the needs of consumers. This problem can be solved by group discussion and opinion or advice from our experienced project supervisors lecturer

4.2 FEEDBACK RATE

The feedback rate we get will help us know the needs of consumers in transforming existing products. Some aspects need to be taken into account in terms of price, attractiveness, appropriateness and the opinions of users we take to this project completely. We also divide the correct and accurate work needed to get the cooperation of each team member to get information.

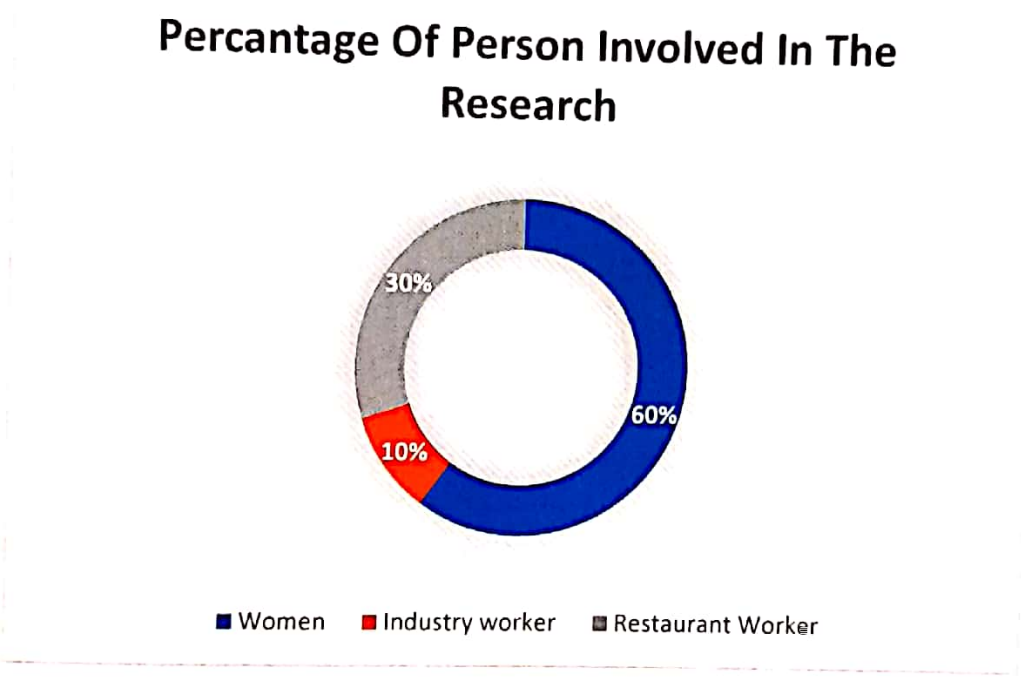
We also emphasize our tests on this project. Through these tests it can help give us the data that will be used in the process of finalizing the final report.

4.3 RESEARCH FINDINGS

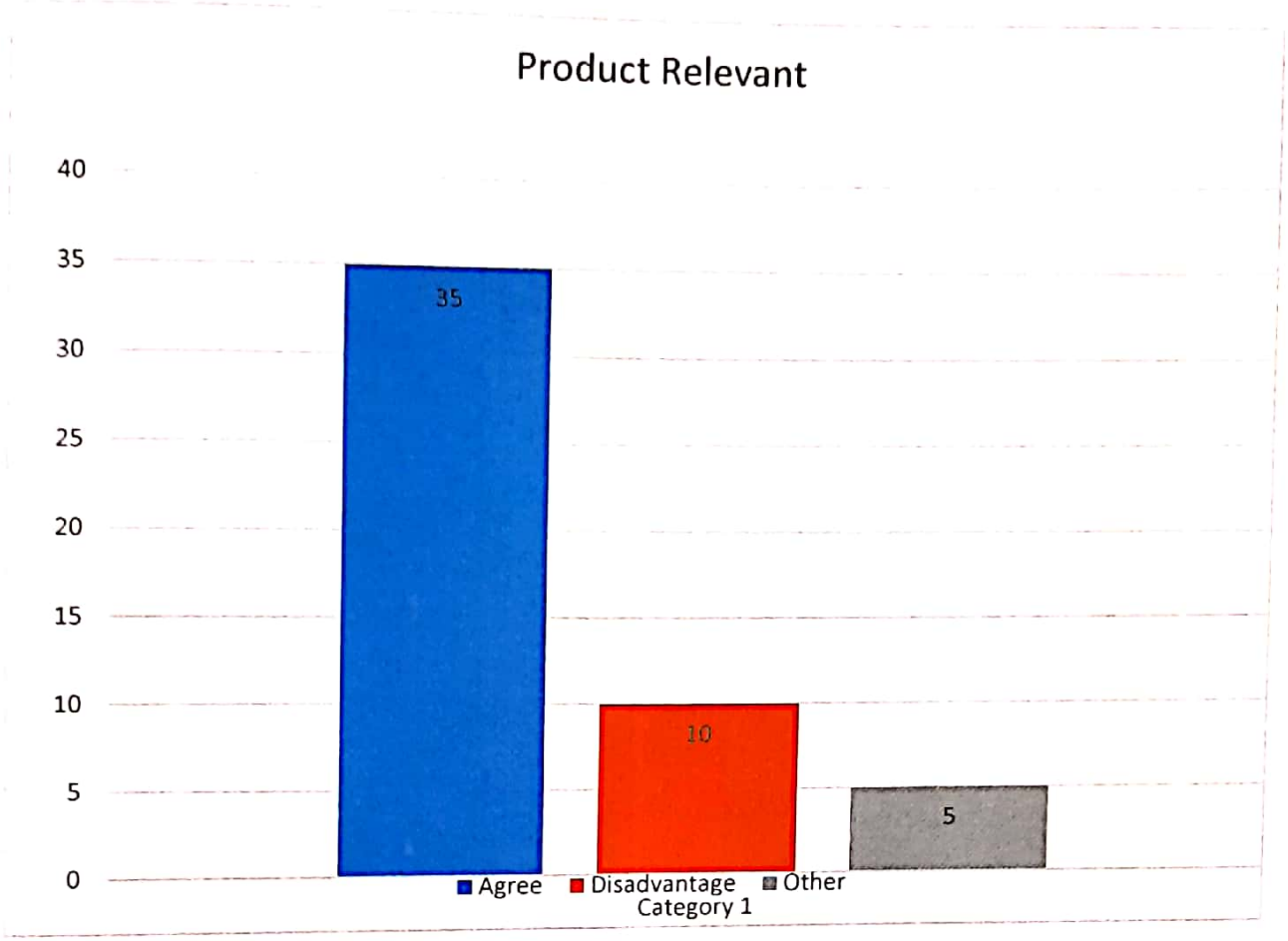
This questionnaire was distributed to 50 people that we randomly selected. Most of them that have targeting are women, industry people and restaurant worker. Through this questionnaire, we are able to identify problems that arise using existing products.

4.3.1 Research Current Self By Question

A. Percentage of persons involved in the research

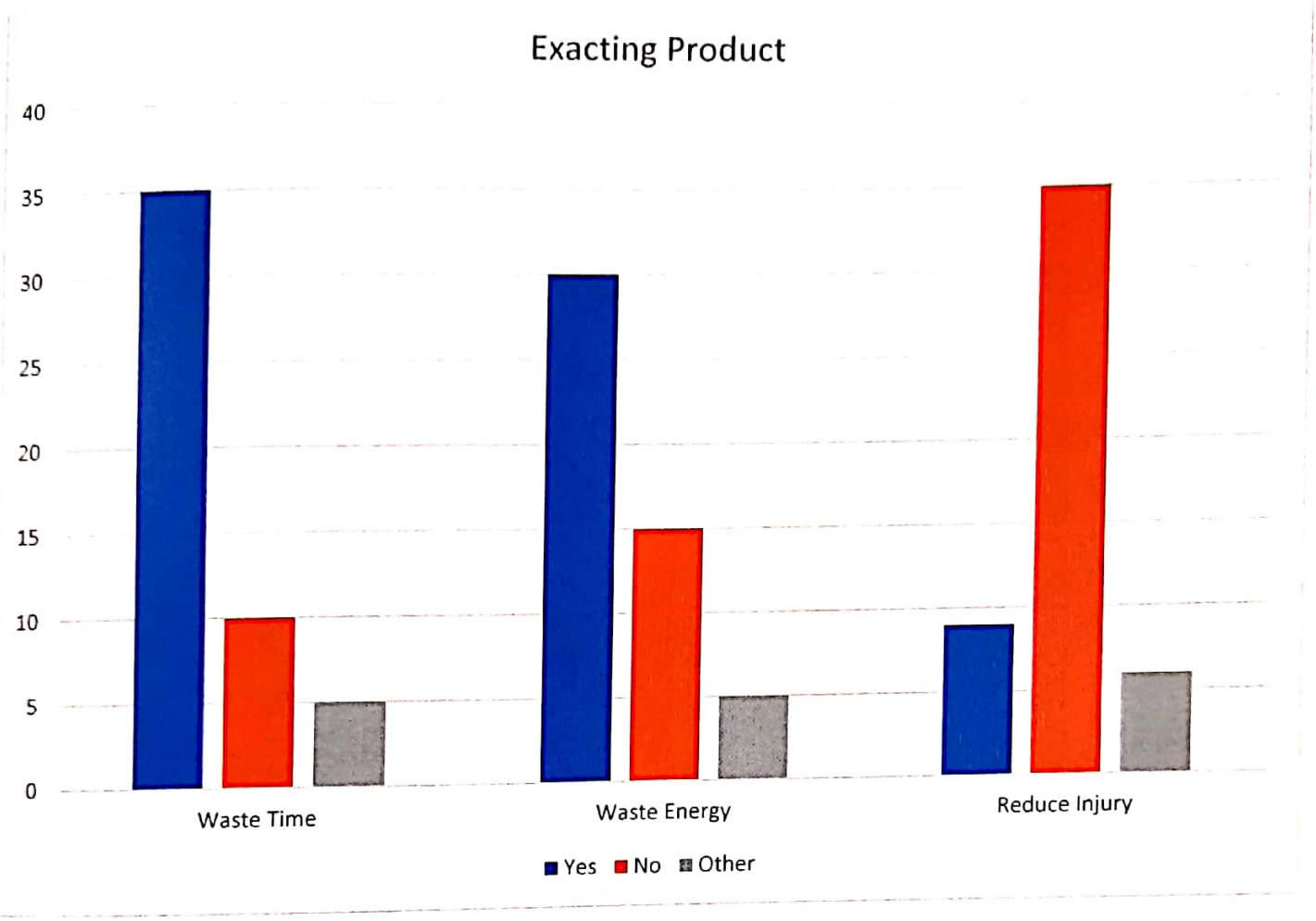


4.2.2 Smart Can Opener Relevant



More than half of 50 people have represented that multipurpose can opener is relevant. 10 disagree because may be the cost little bit more expansive than old version.

4.2.3 Weakness of Exacting Product

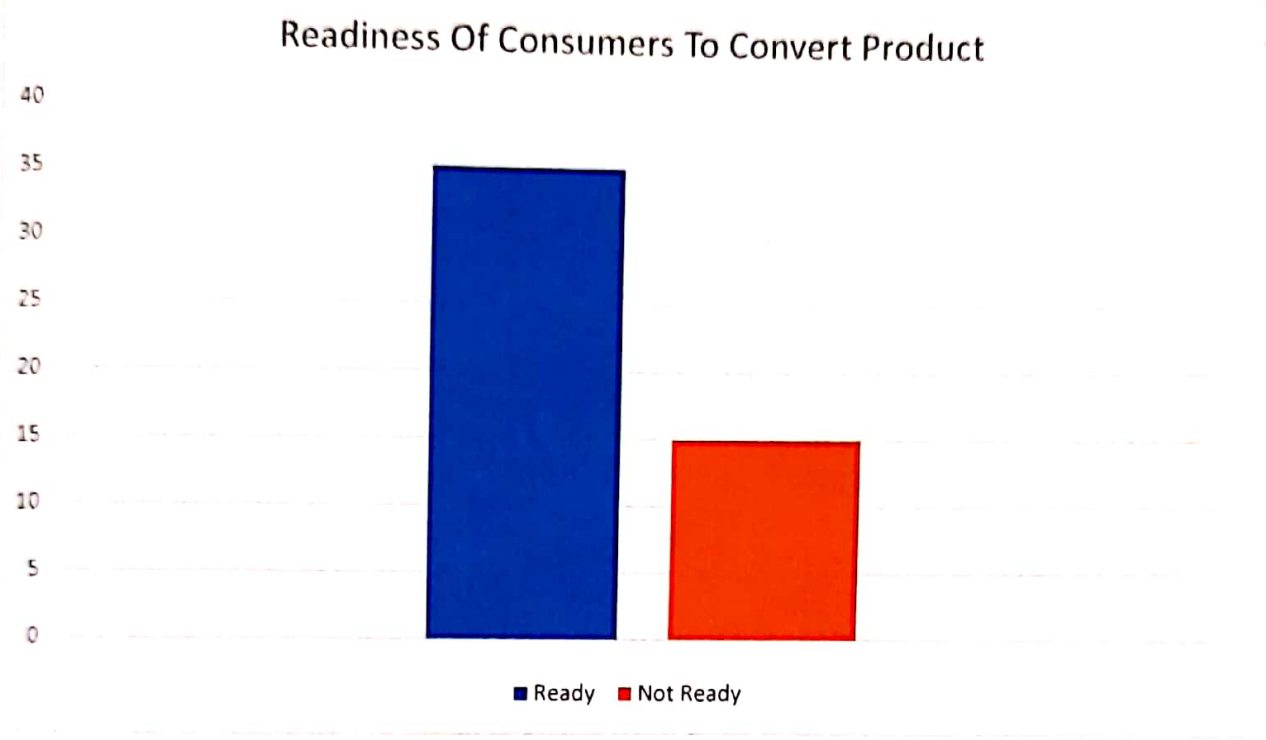


35 people agree that old version waste their time, 10 people disagree and 5 people other.

30 people agree that old version waste their energy when they used, 15 disagree and 5 other.

35 people disagree that old version reduce, 9 agree and 6 other.

4.2.4 The Readiness Of Consumers To Convert Existing Products To Smart Can Opener.



Most consumers are ready to switch from existing products to new product while there are some of them are accustomed to existing products.

4.3 CHAPTER SUMMARIES

The findings from the questionnaires that we distributed helped us to complete this project. As a result of the survey form, we will be able to see the opinions of users who want a change in the products we will innovate. We are also working hard in preparing this survey form to facilitate the construction of our project.

We also work together to get quality and useful projects. Most of the work is done in groups such as distributing questionnaires and observing and finding items to the appropriate and affordable hardware or shops. The ideas and views obtained are also taken and used by us if appropriate. Through this, we are able to build the desired market project.

CHAPTER 5

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 CHAPTER INTRODUCTION

This section will explain the concepts of discussion, conclusions and suggestions. Discussion is a language activity that demonstrates the existence of an effort to defend, support and oppose any argument presented. The Chamber Dictionary defines the discussion as a matter of exchanging opinions with one another about something important.

Asmah (2000: 1) states that the discussion is a language that indicates the existence of a defence, support or opposition to a statement that is said.

Conclusion is a decision reached at the end of the discussion. In other words, the conclusion is the result of a conversation. The hall of the dictionary defines the summary of what has been discussed, the contents of the whole (essay, lecture).

Section 2 (A) AK 1950 defines the proposal as a statement of desire to others for the purpose of obtaining consent from that person. The person who proposes an appointment can be defined as the promise of an appointment while the person who receives is the recipient of the promise. Suggestions also mean an invitation / consultation made by someone else to another person. That party may accept or reject the invitation.

5.2 DICUSSION

The discussion is the result of the findings as well as some of the problems that arise and the discussions are gathered to make a solid discussion of the solution in relation to all the problems. Through discussions made by an alternative or new approach it may be possible to provide a guide to ensure that all problems arise can be resolved quickly and wisely. The following is a discussion of the findings of the findings as well as problems arising during the research conducted for the project "SMART CAN OPENER".

Without proper planning, it is possible that the resulting result is moderate and less satisfactory. After discussion and research done, a project was created "SMART CAN OPENER". The process of designing this tool covers several levels.

Among the issues and issues that need to be discussed are in terms of capital, project quality, surveys on usage and effective ways to carry out its manufacturing. Additionally, we have set up the daily tasks that we need to take every month to ensure the smooth running of the project.

5.3 CONLUSION

This section summarizes all the findings based on data analysis that has been done. The findings of this study are based on the results of the hypothesis testing to get the answers to the research questions.

As a result of our experiments, the blade to grip the object rotates well and follows the size of the nut and bolts. The project we have done has had a positive impact for us after so long studying in Mechanical Engineering. Therefore, we use a little bit of knowledge about the system that we have learned so far as well as with the help of all the lecturers involved. Before we did this final project we made a discussion to implement a product that could help ease and facilitate the user's way of working.

We've got an idea as a result of the discussion to create a new version of spanner that can speed up and simplify the process of job repair. We hope this product will achieve our target. As a result of discussions with group members who have been approved by the supervisor, we are able to implement a product that is Smart Can Opener. We hope that the implementation of this product can be an answer to the problems faced by consumers.

The production of this project also indirectly produces innovative, creative and critical thinking students for the modification of existing products. This is in line with the government's aspirations for complete and willing graduates to assist in the development of the country

5.4 RECOMMENDATIONS

There are some improvements we can elaborate and are able to produce better spanners as well as more spanners towards commercial. Among the suggestions for improvements that can be described are:

- Material

The materials used are lighter and stronger because as our prototype only use soft and aluminium steel on the blades. This is because the cost of the material is relatively low and easy to cut. Mild steel is used for outer while inside, blades uses aluminium. In the future, if it can be commercialized stainless steel material will be used on the outer surface of the frame while we use cast iron on the inside of the blade.

- Cost

It is hoped that the polytechnics can provide 10% or 20% of the cost that students need to implement the project as they can help the students to create a product. This problem arises because some of the students want to implement a product but cannot be implemented and have to change another product to be implemented. This happens because of the relatively high cost.

- Equipment tools

The existing workshop equipment was polished by polytechnics and most of them were damaged and many tools were missing. So we had to do the work out of the poly or even take the opportunity with other students to use and have to share with other students. This will cause problems for the process to complete this project for too long Thus, the implementation of the project will be somewhat disturbed and some students will have to purchase the necessary tools to complete the project.

5.5 RESEARCH IMPLICATIONS

Over the course of this semester project, we have gone through several important phases of influence. Among the phases we are going through are the selection and presentation of gross ideas, conducting conceptual studies, tabling the concept of gross, discussions on project problems, designing the timeframe.

These phases have impacted both in both positive and negative aspects. There are also other factors that affect throughout the project implementation period, including successful identified problems, material estimates and their impact on the project, uncertainty in material costs and size errors. This requires us to improve the re-project and the difficulty of finding materials and estimates of the implementation process.

All issues and estimated costs can be solved by the outcome of the discussions, decision makers and also with the help of our project supervisors. It can also be resolved by cooperation between group members.

5.6 CHAPTER SUMMARIES

All the skills and experience available to each member of the group are produced and practiced together to ensure the success of this project. Additionally, test the level of patience and determination within each member during the 15-week project activity. Carry out every task entrusted to each member of the group with full responsibility and dedication.

Furthermore, the importance of cooperation in each group is due to the fact that without complete cooperation, any work done is not successful and well prepared. The ideas and views gained by each group member should be thoroughly investigated and reviewed before applying in any work undertaken.

POLITEKNIK MALAYSIA

SULTAN SALAHUDDIN ABDUL AZIZ SHAH

DEPARTMENT OF MECHANICAL ENGINEERING

DJJ6143: PROJECT 2

TITLE:

"SMART CAN OPENER"

CHAPTER 4 & 5

SUPERVISOR NAME:

MRS. SYARIFAH NOOR BINTI DERAMAN

NAME	METRIC NO.
AHMAD ZAHIN BIN ZAINAL RASID	08DMP17F1060

JUN 2019

CHAPTER 4

4.1 Findings and Analysis

The findings and data analysis from the research have been one of the important chapters in the production of this final semester project. This chapter may not be fully completed if the final project has not been implemented and in this chapter will also discuss the study and the results of the project being carried out. Each project must be tested to achieve the objectives set out by the group members to prove the project has worked well or otherwise.

The main objective in the "SMART CAN OPENER" project is to make it easy for users to open the cans perfectly without any injuries. There are several key studies done and will be discussed in completing this project. The results are not only in the form of research charts but also in the form of concepts of goodness and weakness.

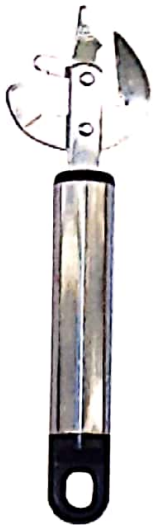
From the whole project, it has achieved the objective of the project which is to facilitate the use of the work to solve such work as open the cans without any injuries. Project results that have been achieved are also positive where the "SMART CAN OPENER" project has been success fully completed and can work well.

4.2 Project Analysis

Project analysis is the method that is carried out on the project that is produced to determine the project's objective achievement, the design, execution, feasibility and evaluation of projects. Besides, it is also carried out to determine if the project is safe to use by the user during open the cans work.

4.3 Product Manufacturing Test against Design

Product testing quantitative testing is very important for the engineering project to know some of the amount of work done using this "SMART CAN OPENER" with the amount of work done, we can conclude a few minutes saved by using this project instead of the old can opener. Test results are as follows:

Previous	Innovation
	
Old version can opener	**Multipurpose can opener**
• 5 minute complete opened 2 cans. ❖ 1 can = 2.5 minute	• 5 minute to complete opened 4 cans. ❖ 1 can = 1.25 minute

So with the time difference that has been studied, this is because the design of the previous can opener is very danger because the user is exposed to finger injuries. So this multipurpose can opener project solves this problem by saving the user time to do open the cans work.

4.4 Advantages and Disadvantages of The Project

In each design there will be goodness or weakness. However, this depend on the idea of each design. Below are some of the advantage and disadvantage of this project:

4.4.1 Advantage

- Long lasting
- Saves time
- Open the can with a more beautiful finish
- Safe to use
- Easy to bring

4.4.2 Disadvantage

- A bit expensive compared to old version

4.5 Project Analysis

In each design there will be goodness or weakness. However, this depend on the idea of each design. Below are some of the advantage and disadvantage of this project:

The advantages of the project:

1. Long lasting

   Long lasting because it is made of stainless steel and less corrosion occurs on the iron. Material use to made multipurpose can opener is stainless steel, aluminum and harden steel.

2. Saves time

   Saves time because multipurpose can opener can save your time when opening the can.

3. Safe to use

   Multipurpose can opener is save to use because no cause can cause harm to the user.

4. Easy to bring

   This project is produced using good materials. Therefore, it is appropriate and not too heavy to carry. This is to make it easier for user to use it without any problem.

The disadvantages of the project:

1. A bit expensive compared to old version
   This project has a bit expansive because of its high production and the use of less erosion and expensive materials.

4.6 Feedback Rate

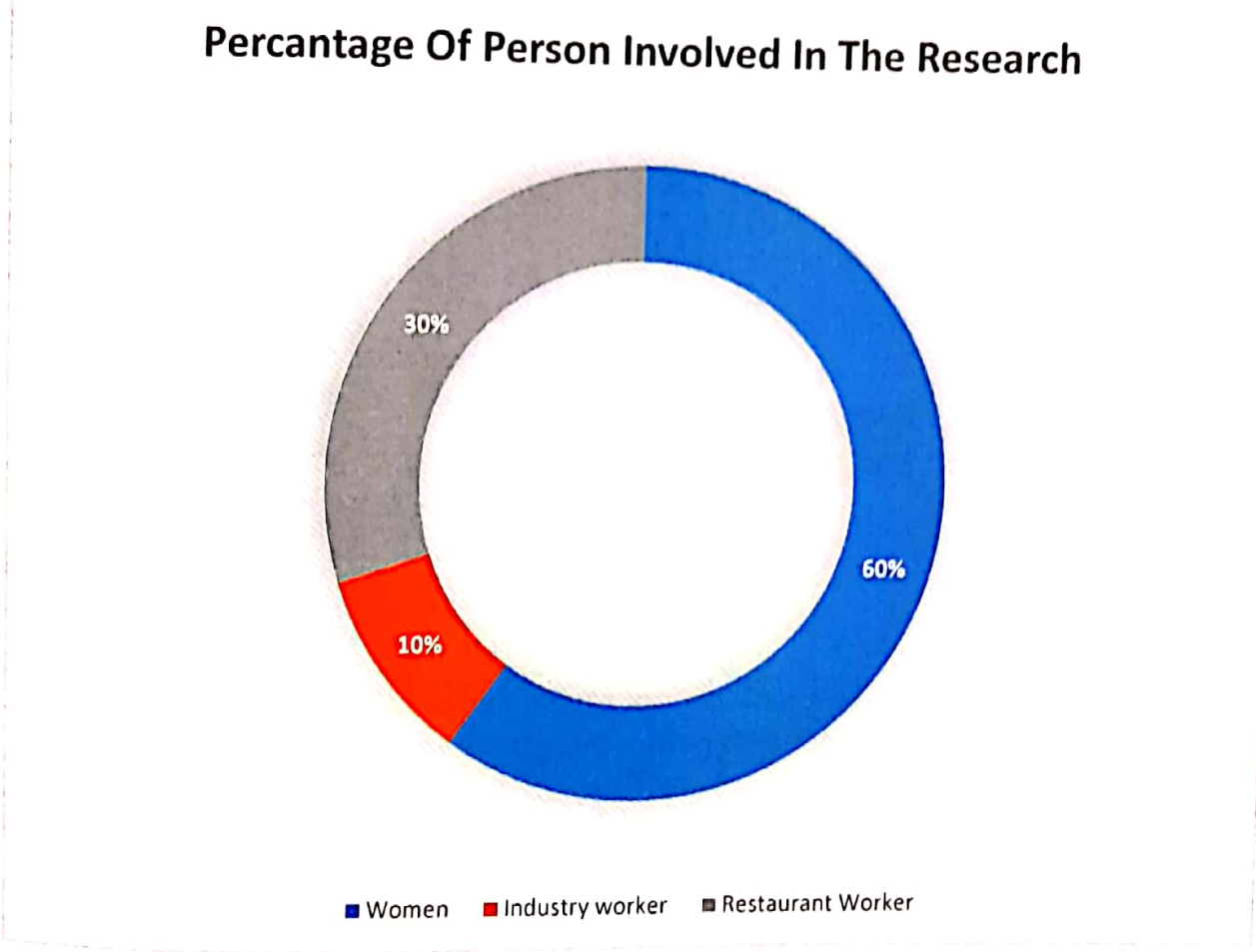
The feedback that we get will help us to find out the desire of the user in changing wasting products. Some aspects need to be considered such as safe using, attraction, suitability of the product and also the opinions from the user that we use to finish our project.

The questionnaire we make is target to the public users as well as people who in kitchen or industry. This product focuses on small-scale users such as women. The project aims to help reduce the work force and save time and also the product needs to be flexibility at every place and condition.

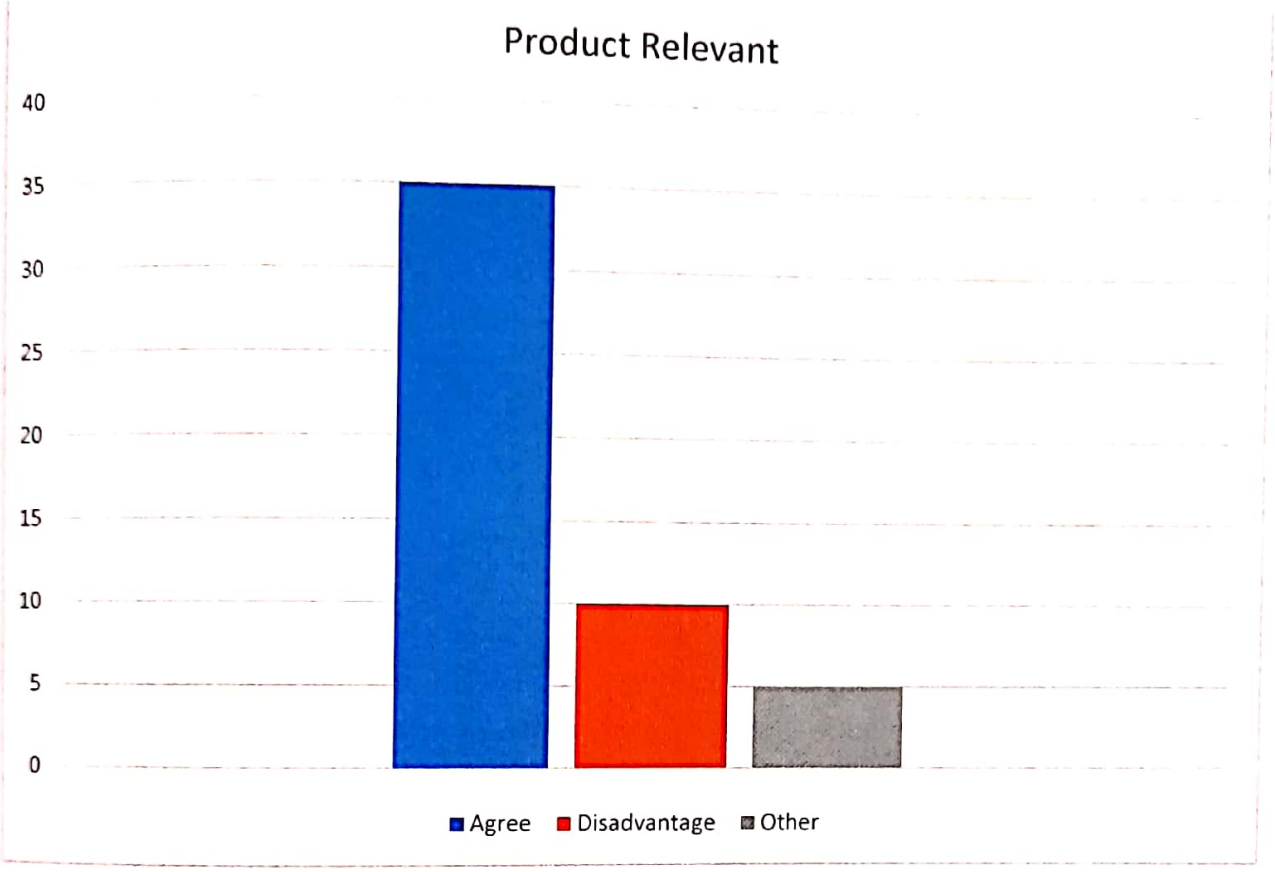
4.7 Result

This questionnaire was distributed to 50 people that we randomly selected. Most of them that have targeting are women, industry people and restaurant worker. Through this questionnaire, we are able to identify problems that arise using existing products.

4.7.1 Percentage of persons involved in the research

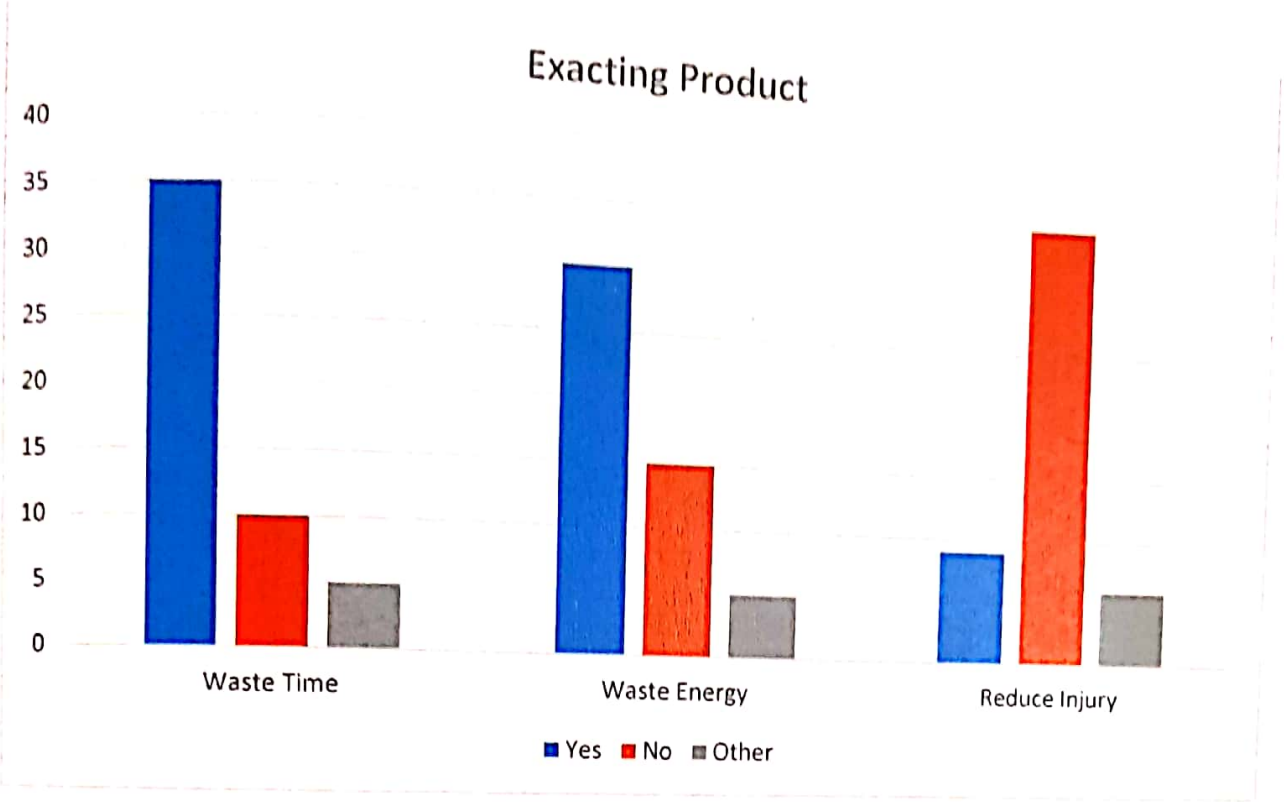


4.7.2 Multipurpose Can Opener Relevant



More than half of 50 people have represented that multipurpose can opener is relevant. 10 disagree because may be the cost little bit more expansive than old version.

4.7.3 Weakness of Exacting Product

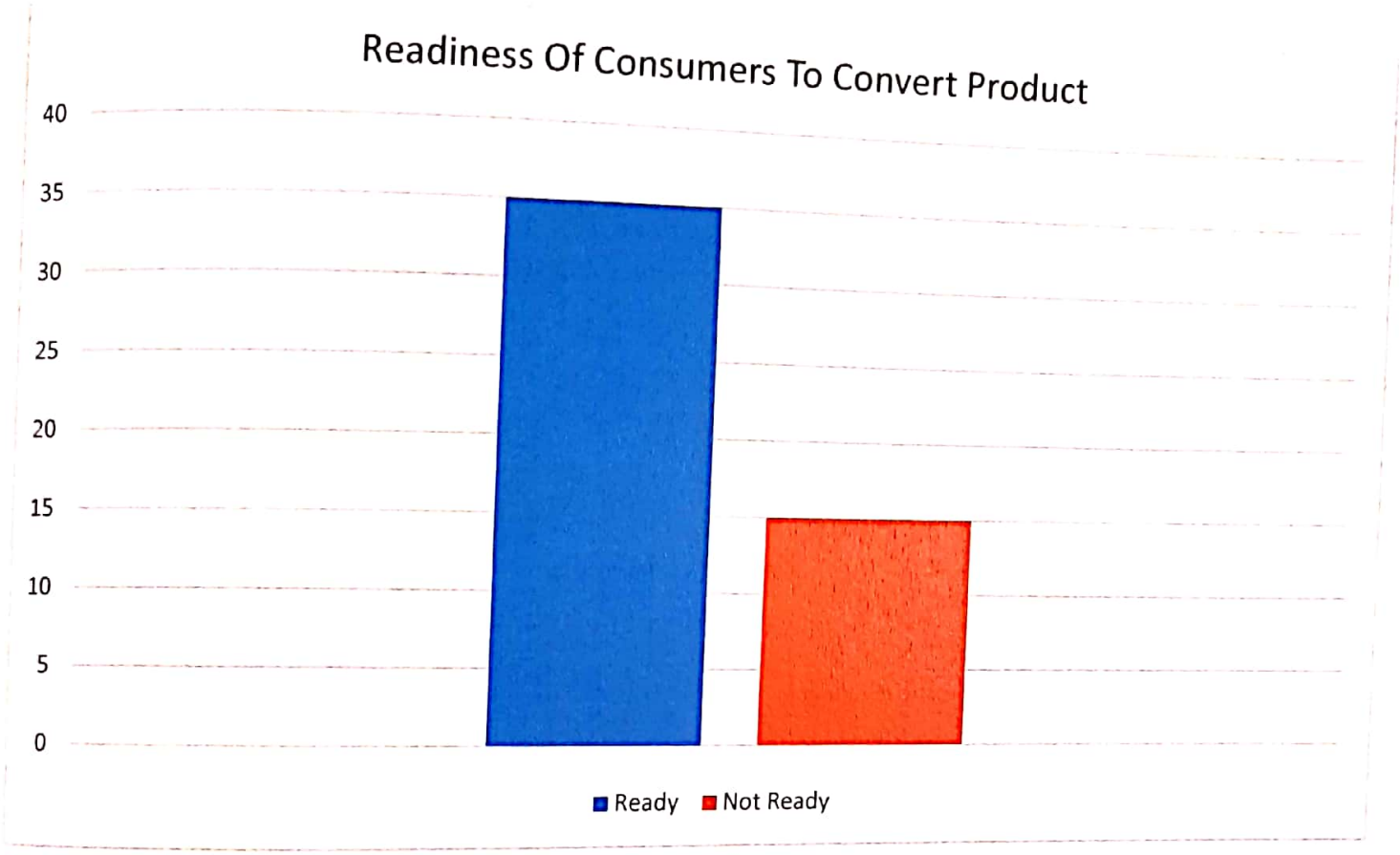


35 people agree that old version waste their time, 10 people disagree and 5 people other.

30 people agree that old version waste their energy when they used, 15 disagree and 5 other.

35 people disagree that old version reduce, 9 agree and 6 other.

4.7.4 The Readiness Of Consumers To Convert Existing Products To Multipurpose Can Opener.



Most consumers are ready to switch from existing products to new product while there are some of them are accustomed to existing products.

4.8 Chapter Summaries

Due to the research question we randomly give to people has help us in continue this project. Results from the research, we can know the witnesses of the consumers in changes in the products which we had investing. We also been trust to be out to finishing our project construction

We also always committed and work together in producing quality projects and work well. Most of the work is done in groups such as stamping the questionnaire and finding the necessary information. Every problem we face will be discussed together and get advice from lecturers. Through this we can produce quality products in the market.

CHAPTER 5

DISCUSSION

5.1 Introduction

The discussion is the result of the findings as well as some of the problems that arise and the discussions are gathered to make a solid discussion of the solution in relation to all the problems. Through discussions made by an alternative or new approach it may be possible to provide a guide to ensure that all problems arise can be resolved quickly and wisely. The following is a discussion of the findings of the findings as well as problems arising during the research conducted for the project "MULTIPURPOSE CAN OPENER".

Without proper planning, it is possible that the resulting result is moderate and less satisfactory. After discussion and research done, a project was created "MULTIPURPOSE CAN OPENER". The process of designing this tool covers several levels.

Among the issues and issues that need to be discussed are in terms of capital, project quality, surveys on usage and effective ways to carry out its manufacturing. Additionally, we have set up the daily tasks that we need to take every month to ensure the smooth running of the project.

5.2 Result

This project has achieved 90% of its objectives. The purpose of this project is to make it easier for users to open different types of cans. However, the maintenance process is very simple without the need for skilled labor or a skilled workforce. In terms of cost, it is quite expensive but is affordable as it is made of corrosion resistant material and is durable. If the project is included, it is not easy but with the methods and ways to overcome it helps us to complete this project more easily.

This project takes time to fully complete due to certain factors. But with the cooperation of the members of the group everything was easier and the project came to fruition as we had planned. There were also problems we encountered when working on this project. Among others, the workshops were timeless but we were able to successfully complete the project.

5.3 Problems Encountered and Solutions

The problems

- Slow down the work time
- Finger injury

The solution

- The multipurpose can opener can save time to opened cans
- Reduce any injury when doing open cans

5.4 Safety Aspects

Workshop safety is everyone's responsibility, the following rules have been put in place to ensure the safety of all students and staff. Please read the safety rules carefully before entering the workshop.

When students are operating machinery all other students are to stay clear and not to talk to the operator. If you feel uneasy or unsafe operating any tools or machinery in the workshop, inform the workshop supervisor and help will be provided.

Workshop safety is everyone's responsibility, the following rules have been put in place to ensure the safety of all students and staff. Please read the safety rules carefully before entering the workshop.

Workshop rules:

- Student affected by drugs or alcohol are not permitted in the workshop
- Students with any health problems that may affect workplace safety (e.g. medication, epileptic fits) must report these conditions to the workshop staff
- Notify the workshop staff of your arrival
- No food or drink in the workshop
- Wear the correct protective equipment for the tools you are using – ask if in doubt
- All chemicals (e.g. glues and paints) must be checked through Chemwatch and with workshop staff before use
- Immediately notify the workshop supervisor of any faulty or broken equipment
- Ask how to use the tools safely
- Make sure your work piece is fixed securely before work commences
- Keep leads up off the floor
- Keep clear of any person operating tools and machinery (bumping an operator or get tangled in the lead could cause serious injury to you or the operator)
- Do not talk to anyone operating electrical equipment and machinery
- Keep your work area tidy
- Clean up any spills immediately
- Wash hands after using equipment and materials

5.5 Summary

After completing this report and project, we are very grateful and proud of the results we have done. Through this project, we are able to develop creativity in creating and modifying existing projects more innovatively. The project implementation in the field of mechanical engineering diploma has taught us lot of things. Among others the mechanics of mechanics that were previously only tied theoretically. Generating a smart spanner is a very valuable experience.

Overall, in the period given by the polytechnics to produce projects, idea ideas are utilized without having to be bound by provisions or restrictions. Undoubtedly, the various problems we face along the project runs. With the cooperation of each member of the group, this project can be achieved successfully.

Lastly, the conclusions we get are any objective achievable success fully if every step taken has a proper and thorough planning.

5.6 Suggestion

The initial idea is the most important process in the project. In the process of creating a project, there are several steps or procedures that need to be done:

a. identifying problems
b. resources to create an idea
c. designing and choosing idea
d. project planning

a. Identifying problems

The problems faced need to be resolved with the group members as well as the lecturers. There are several methods of identifying the problem is through discussion, observation, questionnaire, and experience. The collection of information and data needs to be made so that the same problem is not repeated.

b. Resources to create an idea

When problems have been identified, the best solution should be selected. Brain storming can be done in many ways such as research, observation, research, questionnaire and careful observation.

c. Designing and choosing idea

This process involves the work of rough sketches in selecting appropriate forms and mechanisms. The closest idea to meeting the predetermined factors will be chosen as the best solution. The factors that will be assessed are like the function, cost of materials, the way of use, the scope and the target user and product safety features.

d. Project planning

The project to be produced must be through careful planning so that the project produced can function perfectly thus achieving each of the stated objectives. In addition, perfect planning can also ensure the smooth running of the workshops and minimize problems in completing the project.

5.7 Research Implication

Over the course of this semester project, we have gone through several important phases of influence. Among the phases we are going through are the selection and presentation of gross ideas, conducting conceptual studies, tabling the concept of gross, discussions on project problems, designing the timeframe. These phases have impacted both in both positive and negative aspects.

There are also other factors that affect throughout the project implementation period, including successful identified problems, material estimates and their impact on the project, uncertainty material costs and size errors. This requires us to improve the re-project and the difficulty of Ending materials and estimates of the implementation process. All issues and estimated costs can be solved by the outcome of the discussions, decisions makers and also with the help of our project supervisors. It can also be resolved by cooperation between group members.

5.8 Chapter Summaries

All the skills and experience available to each member of the group are produced and practiced together to ensure the success of this project. Additionally, test the level of patience and determination within each member during the 15-week project activity. Carry out every task entrusted to each member of the group with full responsibility and dedication.

Moreover, the importance of cooperation in each group is due to the fact that without complete cooperation, any work done is not successful and well prepared. The ideas and views gained by each group member should be thoroughly investigated and reviewed before applying in any work undertaken.

Lastly, the conclusion we get are any objective achievable successfully if every step taken and proper planning.

POLITEKNIK MALAYSIA

SULTAN SALAHUDDIN ABDUL AZIZ SHAH

DEPARTMENT OF MECHANICAL ENGINEERING

DJJ6143: PROJECT 2

JUN2019

TITLE:

"SMART CAN OPENER"

CHAPTER 4 & 5

SUPERVISOR NAME:

MRS. SYARIFAH NOOR BINTI DERAMAN

NAME	METRIC NO.
NURUL SABRINA BINTI MOHD SUKOR	08DMP17F1093

JUNE 2019

CHAPTER 4

RESULT

4.1 CHAPTER INTRODUCTION

In this section, we will discuss the results of the projects we have worked on. The whole chapter is closely related to the results we got during the 2 semesters of the project in progress. We also receive positive and negative feedback from users. But we also got advice from the lecturer, Mrs. Syarifah Noor, to understand the concepts we are working on, the Smart Cans Opener.

In addition, we are also looking into the markets related to the projects we will build to ensure our projects are in line with our users' needs. There are many challenges and assumptions we have made to ensure this project is completed within a set timeframe.

Some key phases also feature tasks in our project such as providing ideas to supervisors, discussing problem statements, feedback from users and anticipating time to process. There are also problems that come with budget over budget, easy-to-use materials and not very strong, not the same size and limited time. This greatly affects the project perfectly to meet the needs of the users. This problem can be solved by discussions with group members and the opinions of experienced lecturers.

4.2 FEEDBACK RATE

The feedback we have received will help us understand the needs of our users in changing existing products. Some aspects are taken into account such as the price, suitability of our users and opinions that we take to complete this project.

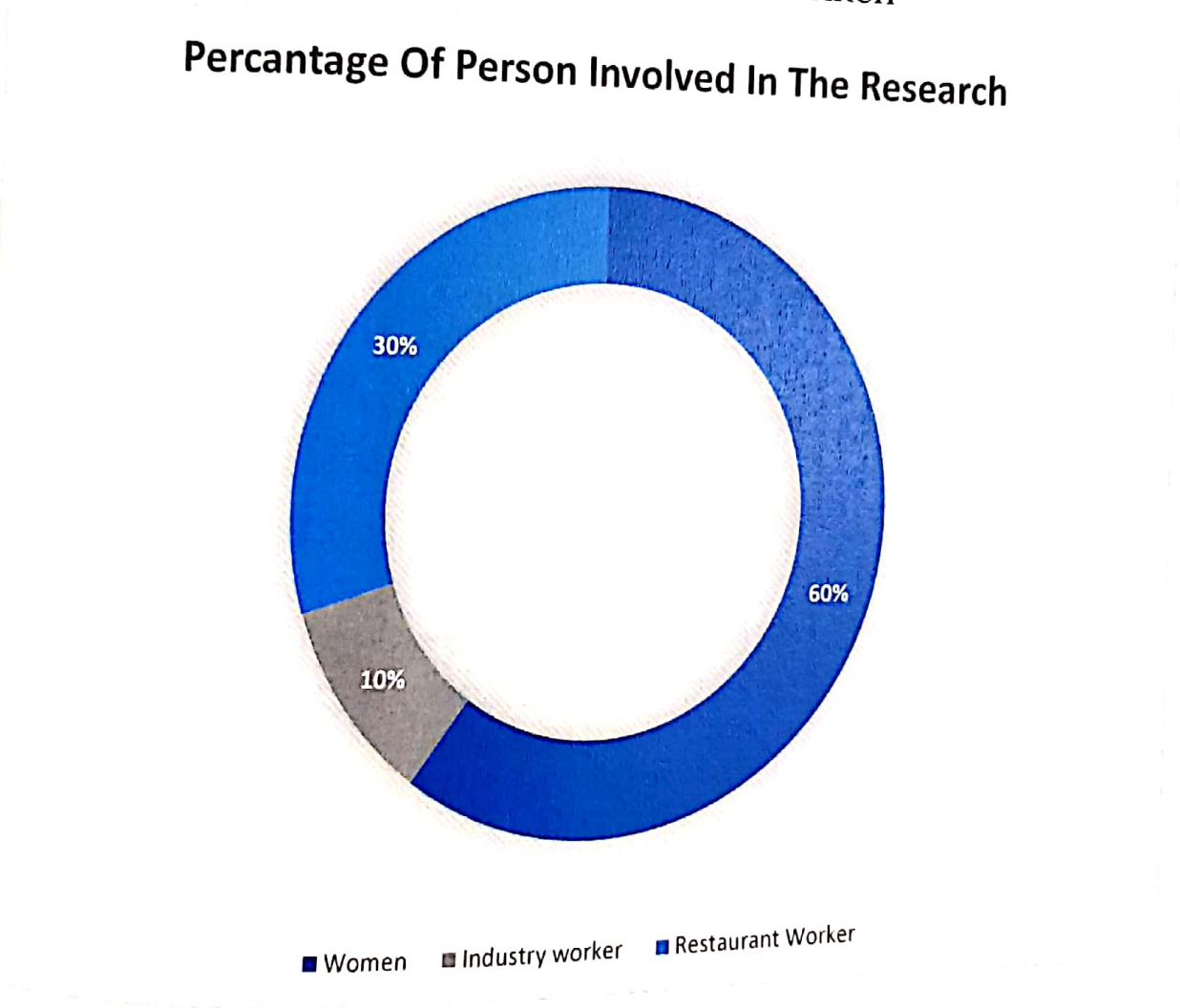
We also divide the work of each team collaboration to get the right information. The questionnaire we targeted at women, industrial worker, and restaurant worker. The project aims to help reduce injuries, save time and make it easier for customers to open cans. We also emphasize our testing of this project. Through this test, it can help provide the data that will be used in the finalization of the final report.

4.3 FINDING

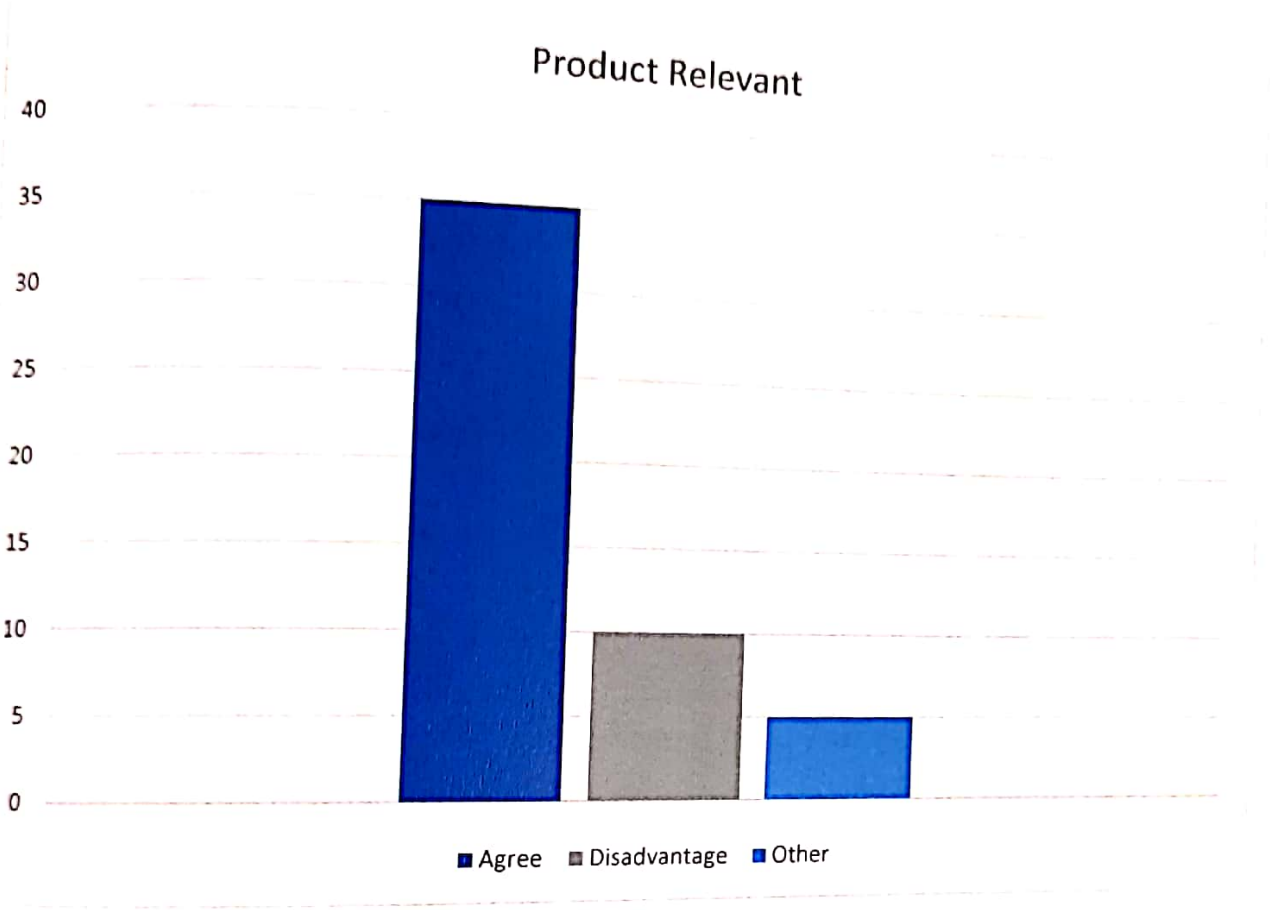
This questionnaire was distributed to 50 people that we randomly selected. Most of them that have targeting are women, industry people and restaurant worker. Through this questionnaire, we are able to identify problems that arise using existing products.

4.3.1 RESULT ACCORDING TO THE QUESTIONNAIR

A. PERCANTAGE OF PERSON INVOLVED IN THE RESEARCH

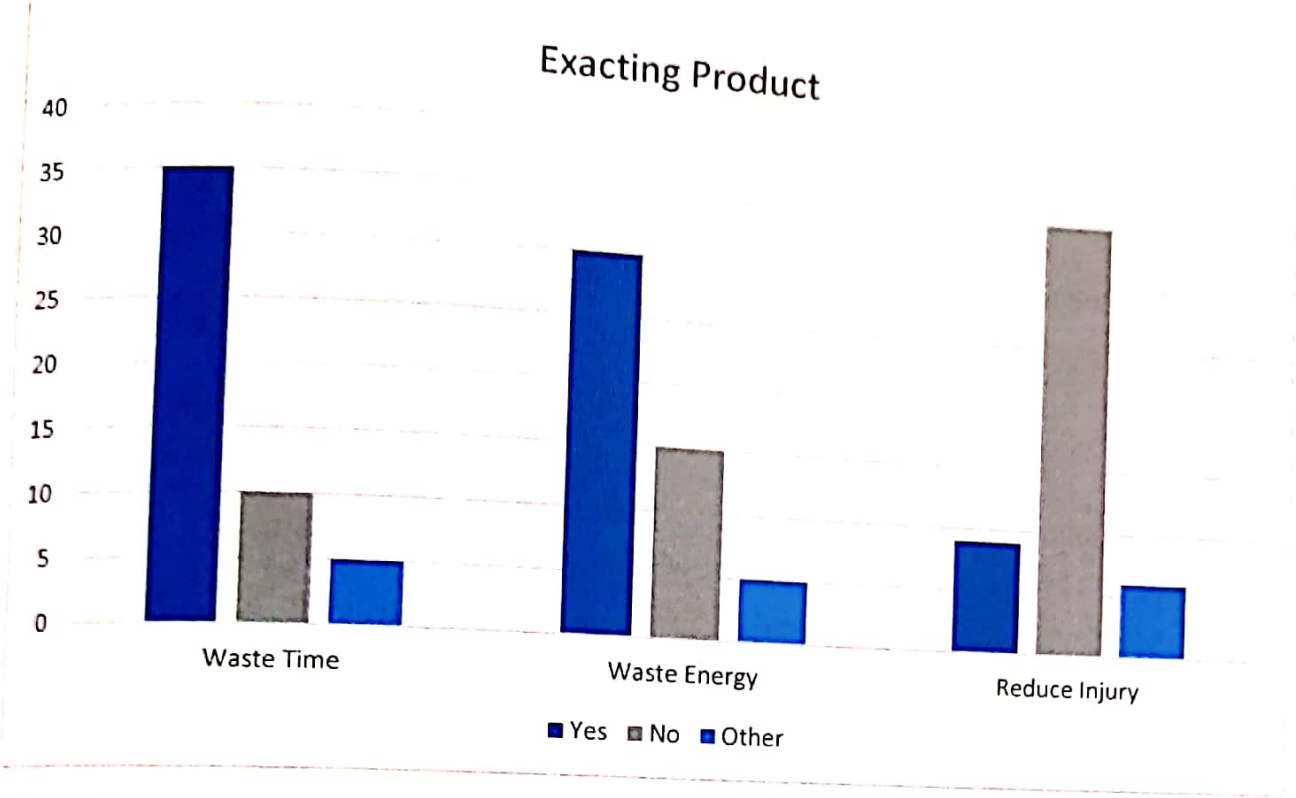


B. SMART CAN OPENER RELEVENT



More than half of 50 people have represented that multipurpose can opener is relevant. 10 disagree because may be the cost little bit more expansive than old version.

C. WEAKNES OF EXCTING PRODUCT



35 people agree that old version waste their time, 10 people disagree and 5 people other.

30 people agree that old version waste their energy when they used, 15 disagree and 5 other.

35 people disagree that old version reduce, 9 agree and 6 other.

4.4 CHAPTER SUMMARY

The findings from our questionnaire have helped us in completing this project. As a result of this survey, we are able to understand the opinions of consumers, especially those who work the restaurant who want a change in the products we will innovate. We also work together to get quality and useful project outcomes. Most of the work is done in groups such as observation, search of materials and items in the shops and factories that are appropriate and affordable. The ideas and views obtained are also taken and used by us if appropriate. Through this, we are able to build the desired market project.

CHAPTE 5

DISCUSSION, CONCLUSSION AND PROPOSAL

5.1 CHAPTER INTRODUCTION

This section will explain the concept of discussion, conclusions and suggestions. This discussion is a language activity that demonstrates the existence of an effort to defend, support, and oppose any argument presented. The dictionary of the hall derives discussion as a matter of exchanging opinions with one another about something important. Asmah (2000:1) states that the discussion is a language activity indicating the existence of a defense, support or opposition to a particular item. The conclusion is a decision reached at the end of the discussion, in other words, the conclusion is the result of one discussion. The dictionary of the dictionary defines a summary of what has been discussed from the contents of the whole (essay, lecture). Section 2 (A) AK 1950 defines the proposal as a statement of willingness / desire to ethers for the purpose of obtaining consent from the person. The person who proposes can be defined as the promise of an appointment while the person who receives is the recipient of the promise Suggestions also mean an invitation/ consultation made by someone else to another person party may accept or reject the invitation made.

5.2 DICUSSION

Based on the research conducted, there are several different opinions and opinions among the respondents. Our product respondents consist of women, industrial workers and restaurant workers.

Based on the data analysis, we found that more restaurant workers didn't know about the SMART CAN OPENER. So, we took this opportunity to introduce and promote them out there. Hope the restaurant workers and the public can use it as well.

Further, we find that they still use the old can opener. With these innovations, they can streamline their business faster and more sophisticated in line with this modern and simple era. In addition, many find this Smart Can Opener relevant to save time and safer use.

They agree that the goal we have for this product is to make work easy and speed up the kitchen work. Most of them are also interested in buying and using this machine if it is successfully marketed.

Finally, they agreed that using this Smart Can Opener would be of great benefit to them. It is safer to use and saves users time. As a result of this discussion, we get positive feedback and feedback on achieving our goals.

5.3 CONCLUSION

This section summarizes the findings of the study based on the data analysis performed. The findings of this study are based on hypothesis test results to answer the research questions. We have decided to use the manpower movement in canning it. It has a handlebar and a rotary seat to open the can. In addition, it has a small gearbox to facilitate the opening of the can. The small size makes it easy to carry it anywhere. The projects we have been doing have a positive impact on us for a long time in engineering in Mechanical Engineering. Therefore, we use a little knowledge of the mechanical systems that we have learned so far. Before we did this final project, we talked about implementing products that could help simplify and facilitate the work of the public.

We hope this product will meet the goals we set and can be used at every level of society. As a result of discussions with team members that have been approved by the supervisor, we are able to implement one product called Smart Can Opener. We hope that the implementation of this product will be a solution to the problems that users face. We have also achieved our goal of making it easier for the public to use it with the creation of these awesome spare parts. We also managed to do teamwork and teamwork. Product development process. Project production also indirectly gives students an innovative, creative, and critical thinking for existing product modifications. This is in line with the government's aspiration to complete graduation and is ready to assist in the development of the country.

5.4 STUDY IMPLICATION

Over the course of this final year project, we have gone through several important phases of influence. Among the phases we are going through is the selection and presentation of ideas, concepts, presentation of concepts, discussions on project issue and designing the timeframe.

These phases have impacted both positively and negatively, There are also other factors affecting the duration of the project's implementation, including successful identified problems, material estimates and their impact on the project, estimates of material uncertainty cost measurements that require us to improve the project and difficulty locating the approximate material of the execution process To all the problems and the budget can be solved by the discussion, decision-making and be work given by all group members.

5.5 SUGESTION

There are a number of improvements that we can elaborate on and can make the Smart Can Opener better and more commercial. Some of the suggestions for improvement factors that can be explained are:

- Design of Spanner

This prototype design is safer than the old tools. It has a handle for the handle and a pin on its shape to make it easier for the user to open the can.

- Material

The materials used is stainless steel, harden steel and aluminum. In addition, our prototype uses expensive steel for stronger durability. It is also stainless steel making it safe to use.

- Equipment Fitting

The workshop equipment provided by the polytechnic was inadequate and was mostly damaged. So we need to find workshops outside to help prepare this prototype. In addition, the rental of workshops outside caused us to incur more costs to complete this final project.

5.6 CHAPTER SUMMARY

All the skills and experience available to each member of the group are devoted and practiced together to ensure the success of the project. Test the level of patience and determination within each member during project activity. Exercise each task entrusted to each task entrusted to each member of the group with full responsibility and dedication.

Additionally, the importance of cooperation in each group is due to the fact that without complete collaboration, any work done is unsuccessful and well-prepared and perfect. The ideas and views gained and triggered by each group member should be thoroughly investigated and reviewed before applying in any work undertaken. As well as we did this work with the help of our lecturers it was Mrs. Syarifah Noor and our friends from other groups.

Last but not least, the conclusion we get are any objective achievable successfully if every step taken and through planning

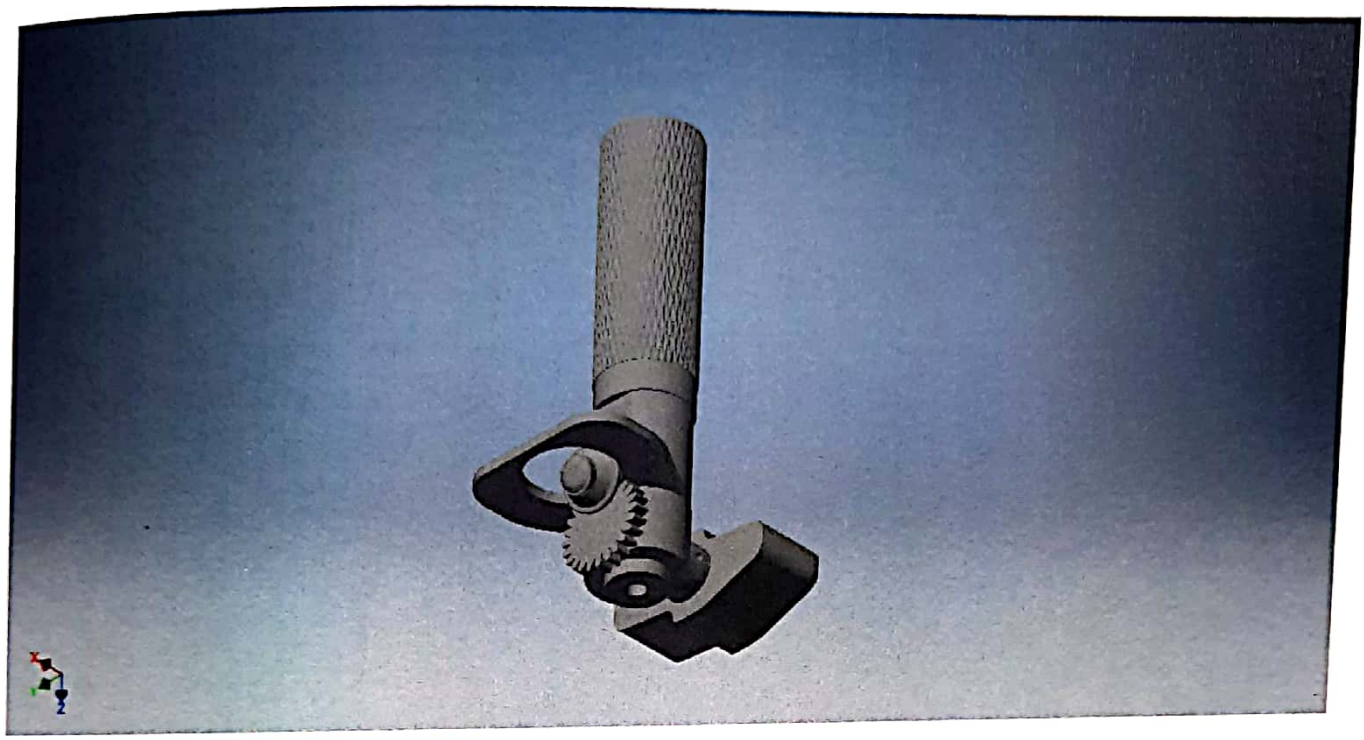
BIBLIOGRAPHY

- *Siegele, H.H. (1981). The Steel Square. Sterling Publishing. ISBN 0-8069-8854-1.*
- *Ulrey, Harry F. (1972). Carpenters and Builders Library. **No.3**. Theodore Audel. LCCN 74099760.*
- *Schuttner, Scott (1990). Basic Stairbuilding,. Taunton Press. ISBN 0-942391-44-6.*
- *Spence, William P. (2000). Constructing Staircases Balustrades & Landings. Sterling Publishing. ISBN 0-8069-8101-6.*
- *Gochnour, Chris (February 2006). "11 Essential Measuring and Woodworking Tools". Fine Woodworking. Taunton Press (182): 75.*
- *Lanham, Wm. The Steel Square. Bath: E. A. Lovell.*
- *Falconer, John (1925). Ednie, John (editor), ed. The Steel Square. Carpentry and Joinery. Vol. V. Gresham.*
- *Sobon, Jack (1994). Build a classic timber-framed house : planning and design, traditional materials, affordable methods. Pownal, Vt. : Storey Communications. ISBN 0882668420.*
- J. Osterhoudt "Improved Method of Opening Tin Cans" U.S. Patent 58,554 2 October 1866
- ^ *"History of the Can: Can Opener". Retrieved 8 August 2009.*
- ^ *R. Foster (18 August 1995). "The greatest Army invention ever". Pentagram (Army Public Affairs) (image of article at www.dogtagsrus.com). Retrieved 8 August 2009.*
- ^ P-38 Engineering Drawing. Georgia-outfitters.com. Retrieved on 20 March 2013.
- ^ Jump up to:*[a] [b] "The P-38 can opener". Retrieved 8 August 2009.*
- ^ *Greame Hardiman. "The Malayan Emergency. 2RAR 1956/57". 2RAR. Digger History: an unofficial history of the Australian & New Zealand Armed Forces. Retrieved 5 November2007. I remember the spoon come tin opener that was in later years nicknamed "Fred" (Fucking ridiculous eating device)*
- ^ *"Black Berets". Ration Pack. Australian Defence News & Opinion – MilitaryPeople.com.au. 2007. Archived from the original on 11 May 2010. Retrieved 8 August 2009.*
- ^ K. F. Schioniger "Folding can opener" U.S. Patent 1,507,093 2 September 1924
- ^ Preston C. West "Can opener" U.S. Patent 1,834,563 1 December 1931
- ^ *"Popular Science". **123** (5). Bonnier Corporation. 1933: 18. ISSN 0161-7370.*
- ^ Bernard Klassen "Electrically operated can opener" U.S. Patent 2,789,345 26 March 1956.
- ^ Walter H. Bodle "Can opening and knife sharpening device" U.S. Patent 2,897,589 4 December 1956.

APPENDIX

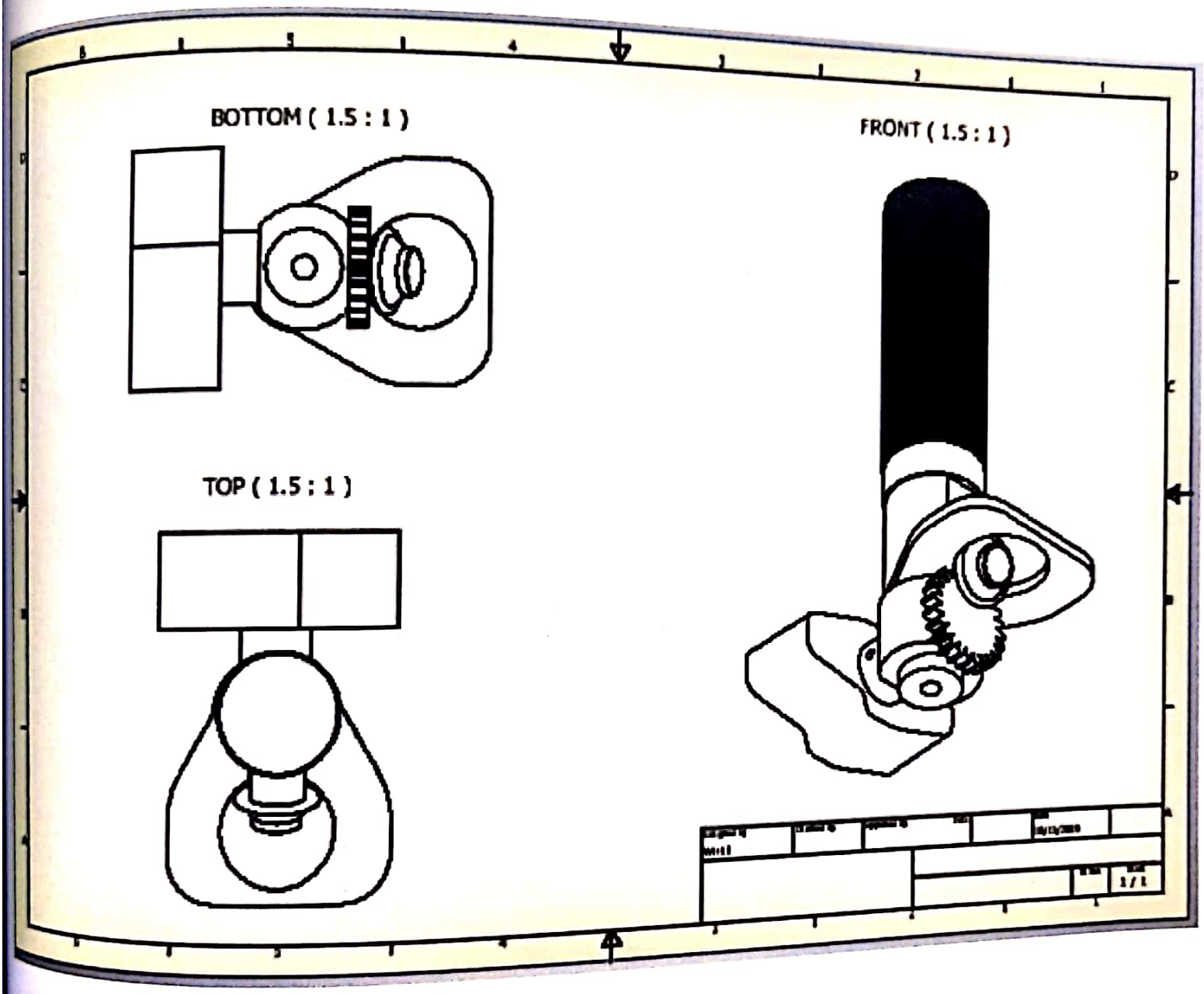
PROJECT DESIGN

Inventor:



Reality:

SPECIFIC DESIGN OF PRODUCT



ESTIMATE COST OF PROJECT

NO	ITEMS	COST(RM)
1	Stainless steel	40
2	Aluminium	30
3	Screw stainless steel x1	10
4	Steel cutter	50
5	Harden steel	60
6	Side wages	310
TOTAL		**500**

GANTT CHART

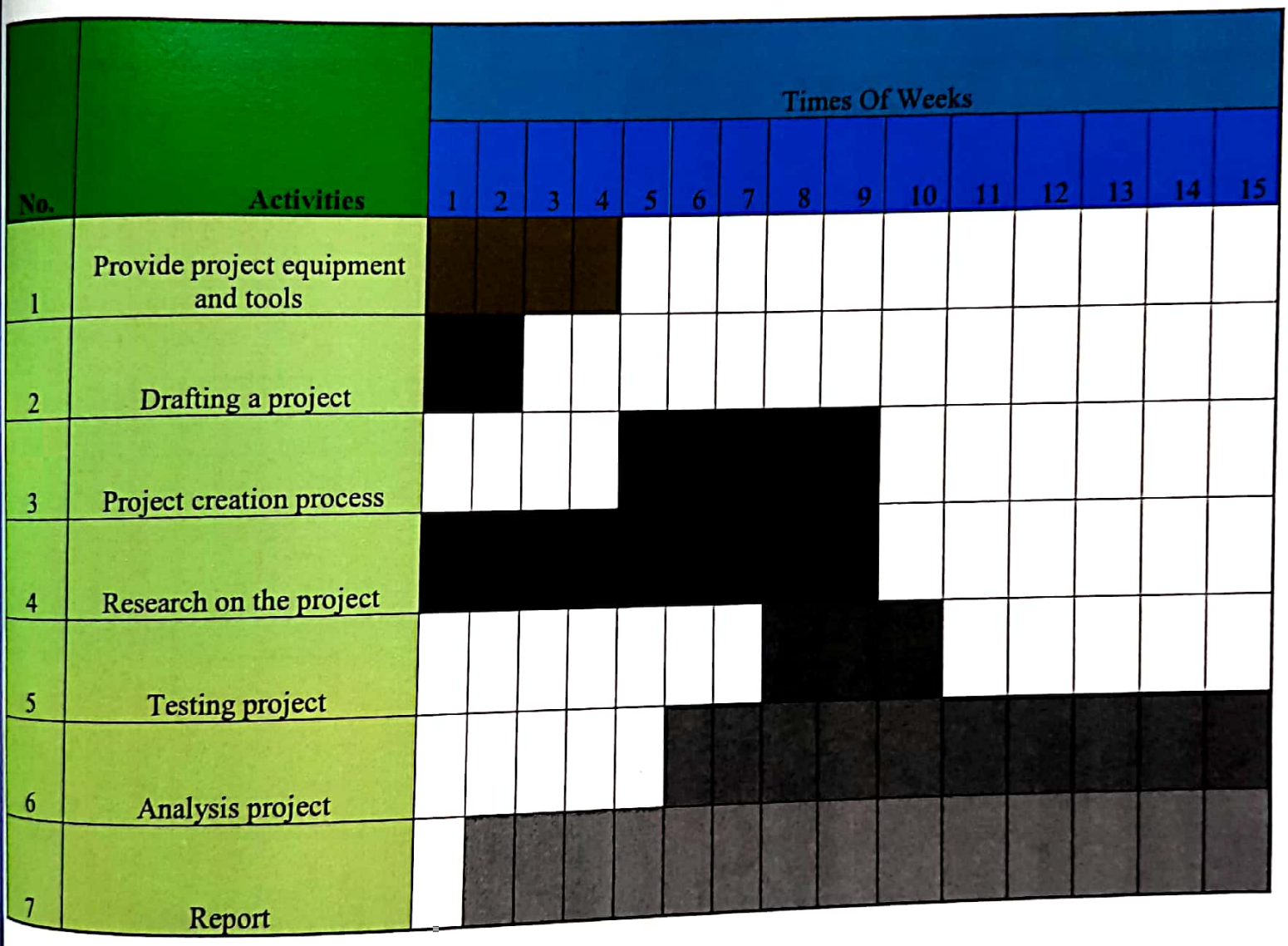
A. SEMESTER 4

No.	Activities	Weeks														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Discussing project by group member															
2	Send initial idea to supervisor															
3	Make comparison idea															
4	Sketch a real idea in dimension and size															
5	Sketch the real idea in AutoCAD															
6	Calculate the cost and budget project															
7	Do the testing material method															
8	Make a simple model (prototype)															
9	Doing a presentation															

Legend:

Planning	
Implementation	
Holidays	

B. SEMESTER 5



POLITEKNIK MALAYSIA

SULTAN SALAHUDDIN ABDUL AZIZ SHAH

A. Demography

1. Gender:

Male ☐ Female ☐

2. Age:

21-30 ☐ 31-40 ☐ 41-50 ☐

3. Occupation:

Retired ☐ Student ☐ Working ☐

4. Do you have any concern or experience about Smart Can Opener?

No ☐ Yes ☐

B. The project named Smart Can Opener was renovated from existing Can Opener device at the market.

Projek bernama Smart Can Opener telah diubahsuai dari peranti Pembuka Tin sedia ada di pasaran.

Answer the question with the help of the scale below.

Jawab soalan dengan bantuan skala di bawah

1 = Disagree 2 = Agree 3 = Strongly Agree

1 = Tidak Setuju *2 = Setuju* *3 = Sangat Setuju*

No.	Situation	1	2	3
1.	Is this project more efficient than the existing product? *Adakah projek ini lebih cekap daripada produk sedia ada?*			
2.	Is this project can go widely and further in this era of the world? *Adakah projek ini dapat meluas dan terus menerus di era dunia ini?*			
3.	Is this project cut beautifully and neatly? *Adakah projek memotong dengan cantik dan kemas?*			
4.	Is this project help restaurant workers? *adakah projek ini dapat membantu pekerja restoran?*			
5.	Is the project cutting fast? *Adakah projek ini memotong dengan cepat?*			

DECLARATION OF ORIGINALITY AND OWNERSHIP

TITLE: SMART CAN OPENER

SESSIONS: JUN 2018

We, 1. AHMAD ZAHIN BIN ZAINAL RASHID

2. MUHAMAD FIRDAUS BIN MUHAMAD FAUZI

3. NURUL SABRINA BINTI SUKOR

Final year students of Diploma in Mechanical Engineering, Mechanical Department, Polytechnic Sultan Salahuddin Abdul Aziz Shah, as located at Persiaran Usahawan, 40150 Shah Alam, Selangor. (Can refer as PSA ')

2. We recognize that the' Smart Can Opener 'and intellectual property contained in it is the work or design of our original without taking or imitate any intellectual property rights of other parties.

3. We agree to relinquish the ownership of intellectual property project to 'Shah Alam Polytechnic' to meet requirements for the award of the Diploma of Mechanical Engineering.

Created and truth which is recognized by;

E) AHMAD ZAHIN BIN ZAINAL RASHID .....

(I / C Number: 990803-10-5347) AHMAD ZAHIN

F) MUHAMAD FIRDAUS BIN MUHAMAD FAUZI .....

(1 / C Number: 990809-02-5815) MUHAMAD FIRDAUS

G) NURUL SABRINA BINTI SUKOR .....

(1 / C Number: 990324-10-6190) NURUL SABRINA

In front of us, PUAN SYARIFAH NOOR BINTI DERAMAN @ ABD RAHMAN (720122-06-5092) as the project supervisor at the date: .....

.....

PUAN SYARIFAH NOOR BINTI DERAMAN @ABD RAHMAN

MARKETING PLAN

Project:

Type: Can Opener

Brand: Smart Can Opener

Material:

Material / Component	Size / No. Unit /Set
Aluminium	1 unit
Stainless Steel	1 unit
Harden Steel	1 unit
Steel Cutter	1 unit
Screw Stainless Steel	1 unit

Selling point (objective)

- Make it easy for user to open cans.

Scope

- Used by hawkers stall and at home use except for children.
- Can be used for various sizes of casting cover of cans.
- No need for skilled manpower to do this activity.

Market Size

Total potential customers:

-Commerce Department-50 students

-Mechanical Department-40 students

-Electrical Department-40 students

-Civil Department-40 students

-Staffs-50 staffs Total: 220 people

Income per month: 220 x RM450 = RM 99000

CONCLUSION

The purpose of this business idea is to let more people know about our Smart Can Opener.

For this business plan, including the background of our company. We have a management plan and how we manage our marketing plan and strategy. We also included the way we use to promote our product such as make an advertisement and give sample to people. From there, we ca find out what the reaction and opinion from people to our project. Then we can make an improvement or such other thing. We can take the price as example. Before we do a questionnaire, we just put the price according to the total budget that we use. But after the questionnaire, we can truly know what the limit of the affordable price that people want for our product.