POLITEKNIK SULTAN SALAHUDDIN ABDUL AZIZ SHAH

PROJECT 2

TWO WAY SQUID JIGGER

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MECHANICAL ENGINEERING DEPARTMENT

1 2021/2022

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This report is submitted to the Department of Mechanical Engineering in partial fulfillment of the requirements for Diploma in Mechanical Engineering

MECHANICAL ENGINEERING DEPARTMENT

1 2021/2022

DECLARATION OF ORIGINAL WORK AND INTELECTUAL PROPERTIES

TITLE : TWO WAY SQUID JIGGER

SESSION : 1 2021/2022

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As the project supervisor on the date : ……

……

ZETTY ROHAIZA

ACKNOWLEDGEMENT

In the name of Allah, the Most Merciful and Gracious. All glory and thanks to Allah and His blessings for the completion of this Final Year book. We praise God for all of the challenges, struggles, and determination that have been bestowed upon us in order for us to complete the book. We went through a lot during this process, not only academically but also in terms of personalities. Our heartfelt thanks to the holy Prophet Muhammad (Peace be upon him), whose way of life has been a constant source of inspiration for us.

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ABSTRACT

The Two Way Squid Jigger (TWSJ) is a machine developed to develop and improve squid catching techniques that can be used in aquaculture areas. TWSJ is a mechanical mechanism used for the process of mooring or catching squid in waters where it is much more effective than traditional methods. The concept of the project stems from the low quantity of squid available and the fact that fishermen can only haul a small number of squid at one time which is unfavorable, as well as the frequent use of manpower to do this hauling work. Furthermore, there is a lack of knowledge about technology in aquaculture areas. To address this problem, this prototype (TWSJ) was developed for a new squid fishing technique. Among the processes involved are jerks or jerks that occur as a result of the reaction between the hook and the squid. (TWSJ) has ten or more hooks attached to a tin wrapped in colorful cloth and tied to a fishing line. The position of the circular main roller in the center of the machine will rotate in a two-way state where the process of down and up the movement of the hook occurs simultaneously. Improvements to the design of this machine have been made such as the use of quality stainless steel materials to reduce the risk of corrosion and manual methods have also been provided. In conclusion, as a result of the running test, TWO WAY SQUID JIGGER is an innovation of squid jigging equipment that is able to increase the quantity of yield and save time as well as the use of human labor.

Keywords : Jigger, Aquaculture, Squid.

ABSTRAK

Two Way Squid Jigger (TWSJ) adalah satu mesin yang dihasilkan untuk mengembangkan dan meningkatkan teknik penangkapan sotong yang dapat digunakan di kawasan akuakultur. TWSJ adalah mekanisme mekanikal yang digunakan bagi proses mencandat atau menangkap sotong di perairan di mana jauh lebih efektif daripada kaedah tradisional. Konsep projek ini berpunca daripada kuantiti sotong yang tersedia adalah rendah dan hakikat bahawa nelayan hanya dapat mencandat sejumlah kecil sotong pada satu-satu masa yang tidak menguntungkan, serta penggunaan tenaga manusia yang kerap untuk melakukan kerja mencandat ini. Tambahan pula, kurangnya pengetahuan tentang teknologi di kawasan akuakultur. Bagi menangani masalah ini, prototaip (TWSJ) ini dibangunkan untuk teknik baru mencandat sotong. Antara proses yang terlibat adalah candatan ataupun sentakan yang berlaku akibat tindak balas antara mata kail dan sotong. (TWSJ) mempunyai sepuluh mata kail atau lebih yang diletakkan kepada timah yang dibaluti dengan kain yang berwarna warni dan diikat pada tali pancing. Posisi penggelek utama berbentuk bulat di pusat mesin tersebut akan berputar dalam keadaan dua hala dimana proses turun dan naik pergerakan mata kail terjadi serentak. Penambahbaikan terhadap rekabentuk mesin ini telah dibuat seperti penggunaan bahan keluli tahan karat yang berkualiti bagi merendahkan risiko pengaratan dan kaedah manual juga telah disediakan. Kesimpulannya, sebagai hasil dari ujian berjalan, TWO WAY SQUID JIGGER adalah satu inovasi peralatan mencandat sotong yang mampu meningkatkan kuantiti hasil dan menjimatkan masa serta penggunaan tenaga kerja manusia.

Keywords : Jigger, Akuakultur, Sotong.

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1.1 Introduction

Jigging is the fishing technique of using a jig, a form of fishing lure. A jig is made up of a lead sinker with a hook moulded into it and a soft body to attract fish. Jigs, as opposed to spinnerbaits, are designed to travel in a jerky, vertical motion and horizontally across the water .The jig is very adaptable, since it can be found in both salt and fresh water. Many organisms are drawn to the lure, making it common with anglers for many years. For active jigging, the jigger must use a reel that is sensitive to strikes and must maintain contact with the lure in order to get it to where the fish are. The majority of fish captured with jigs are on or near the bottom.[1]

1.2 Research Background

A jig's head may have a variety of shapes and colours, as well as various features. The most famous is the round head, but other shapes include fish heads, cones, and a variety of others. In bass fishing, the three most common jig head shapes are the flipping jig head, the football jig head, and the grass jig head. These heads are available in a variety of styles.For large saltwater bottom fish, weights can range from 1/80 of an ounce to nearly a pound. They are also available in a various types of colours and styles. The hooks even differ. These variations may be in the hook form, colour, hook angle, or hook material. Any jig heads have a weed guard.

Jig bodies come in a variety of shapes and sizes. Rubber or silicone is the most commonly used material. These can take on the appearance of a grub, frog, shark, paddle tail, snake, or various insects. These can vary in colour from light yellow to a clear brown with silver and red flakes. Often, consider colours for the sun during the summer months. Browns or blues with black fur, for example. Many others catch fish such as smallmouth and largemouth bass. Jig bodies may also be made with bait such as minnows, leeches, or night crawlers. On the outside, other, more common styles use dyed or natural whitetail deer tail fur. A buck tail jig is a form of jig that is often used in the northern and midwestern United States, where many are still

hand tied by anglers. Other fabrics used to make jig bodies include a Chenille wrap on the hook handle, assorted feather hackle, hairs or other feathers, marabou, flashabou, and other materials. Construction is often analogous to the mechanism of fly tying. Some jigs are built just like their artificial fly counterparts, for example a fuzziness.

1.3 Problem Statement

Squid has often been caught using the conventional "seine" technique, which uses a wide diameter fishing net that hangs vertically in the water with its bottom edge weighted down by a lure weight and its top edge buoyed by floats. This project's problem statements are divided into three categories. To begin with, the jigging strategies that can be used in aquacultural areas necessitate a significant amount of manpower and time. Second, there are fewer squids, which is unprofitable for fishermen since only a limited number of squids can be jigged at any given time, and it is costly for consumers. Finally, there is a lack of technological knowledge in aquacultural areas, especially marine aquaculture.[2]

This is one of the key reasons that inventions are difficult to apply in much needed environments. Two Way Squid Jigger aims to address these issues by creating a mechanism that increases the volume of squid that can be jigged every minute or per hour. Squid jiggers used the principle of jigging, which is a jig rod with a hook moulded into it that is commonly used by fishermen. A light to entice squid Jigs are designed to produce a jerky motion that attracts squid. Jig rod is stacked in a dock with one end facing either direction. Multiple squid hooks are attached to the rod, and the gaps allow the squid to move about as they catch the hook.

The dock is placed in the centre and mounted on a stainless steel bar. The squid jigger frame is designed to be flexible and suitable for a variety of boat sizes. Since the jigging machine would be placed on a boat and used at sea, stainless steel is an excellent option. As a result, materials that are resistant to water and rust are at the top of the list.

1.4 Research Objectives

1. To design the squid jigging machine.
2. To run a test towards the squid jigging machine
3. To fabricate the squid jigging machine

1.5 Significance of Study

Despite the fact that the conventional method of jigging squids is currently common in Malaysia, and jiggers have enjoyed it. However, some jiggers, especially fishermen who work with jigs as a profession, need to capture a large number of squids in a short period of time, and the demand is high.

Malaysia has a large population of squids. Thus, the findings of this analysis will favour both fishermen and jiggers, as this inexpensive system will increase the amount of squids to be jigged. Furthermore, it will demonstrate the role of technology in marine areas. It would totally help Malaysia to sit as low as possible and stand as high as possible in comparison to other developing countries.

1.6 Scope and Limitations

Accordings to the research, this machine can be regularly exposed to the water. Then, this machine are recyclable. This machine is incompatible with big ships. Lastly, with proper treatment , it has the potential to last a long time.

1.7 Summary of Chapter

The research on the roots of thoughts and motives were described in this chapter. The objectives were developed in response to the issue statements generated throughout the discussion and brainstorming sessions. The major advantage of this machine was its low cost, as well as its ability to increase the number of squids that could be jigged. Even if it is exposed to water and air, corrosion may be effectively minimised with the aid of the material utilised. As a result, this first jigging machine may be used to a new way of jigging squids and can survive longer with proper maintenance.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter will describe and discuss the material used to build the squid jigging machine. Furthermore, our own machine compares the classic jigging method, with every approach with its own novelty and functionality. jigging has been utilised for millennia but is mostly employed for the last resort catch of fish. More people have reinvented and changed with the passage of time. There are no particular human beings who pioneered squid jigging but the Japanese master jig fisher, Yoichi Mogi, reinvented those tactics and tactics that have proved devastating for most fish species worldwide.[3]

The most typical squash-jig is a kelly formed chin which continually reduces the jig by an angle with its head down position of roughly 45 degrees. A decent overall gun is the most common of these barley weighted firearms. Head-weighted jigs are weighted forward and the top of the jig has a tow point. They tend to cast and sink faster, making them suitable for aggressive acts on the coast. Thinner profiling jigs are made to be jigged quickly whereas bigger jigs are more booming and have a subtle regeneration side by side.

A layer of strings with reflective or silhouette qualities for all daytime and light circumstances may be used in the better grade jigs. The It is consequently true that the colour of the band employed is affected by the atmosphere's level of ambient light. Dark red, purple and pink tape are appropriate for use in low light conditions (during dawn, dark, or cloudy days), but silver and gold shine strongly and can attract a calf's attention on a sunny day. Rainbow coloured tape creates a flash/silhouette mix and is a fantastic all-round rider.[4]

Traditional jigging activities were still in use in Malaysia in current times although outside nations built their own jigging machines. Moreover, most of the six machines were really marketed outside of Malaysia, notably the oblong and the roller sections, but we showed we could do it ourselves without buying so pricey.

Thus the specifications of the materials, the jigging concept and even the sorts of fish utilised, and the contrast between old and modern jigging techniques will be presented in this chapter.

2.2 Jig Squid History

The first marine fishing on the South African coast can last up to 160,000 years. The maritime ecology was significantly affected by ancient populations. For domestic animals and for human consumption cephalopods were utilised as a bait, fertiliser and feed. Squids were possibly captured with jigs and spearfished (similar to modern jigs) In early times, there is no technical knowledge concerning fishing nets. The octopic civilization on Crete in the eastern Mediterranean from Middle to Late Minoans at least provides clear proof of their familiarity with cephalopods (squids).[5]

The early twentieth century with the presence of mechanized fishing vessels and the improvement of explicite fishing and jigging gear. It was simply after World War II,with advancement of marine fishing vessels, notably the number and after the great many years of began to arrive at a huge. They now started to dedicate themselves considerably to the full range of naval goods for human use. In the following species narratives, it is shown the fishing history of each abundant and industrial squid variety. Thus, the benefits, the design principles applied, squid jigging devices and material characteristics will be described in this section.

2.3 Squid Jigger Design Principle

Jigs are meant to produce a squid-attracting movement. Jig rod is packed into a dock on each side of the end of the rod. Multiple squid hook binding to rod approximately 3 metres to create squid room when it is hooked. The inox steel bar at the end of the boat faces the roller to help the jig rod moves up and down effortlessly. The roller acts as the roller in the system, so that the heavy load may be easily lifted. The base of the calf jigger is also taller to minimise stuckness. The

jigger is adjustable. The dock is installed and placed in the middle on a stainless steel bar.

2.4 Squid Jigging Equipment

The fact that jiggers only require two basic fishing or jigging devices to assure a good capture is one of the most handy components of squid jigging: jig and rod. Choose a site that is not too deep and close to the bank to make a good catch.

2.4.1 Jigs

A jig is a sort of lure, consisting of a plumb sinker and hook, as indicated in figure 2.4.1 and highly colourful, soft body. Jigs are meant to produce a squid-like vertical movement. Very little knowledge is made on their psychology, but due to their big eyes squids have a good view. They are also quite smart, meaning that one will need a jig that is sufficiently realistic to entice these animals.[6]

Figure 2.4.1 Types of Jigs

2.4.2 Rod

As with other forms of fishing, practically any rod will suffice as long as it is light and long, as illustrated in Figure 2.4.2. This allows fishermen and those interested in squid jigging to detect even the tiniest changes. A light bass rod or spinning rod would suffice for this task. Squid fishing rods are available for people who intend to make squid fishing a regular sport. However, because these rods are rather brittle, one should use extreme caution while putting force on them. A drop net was also required to contain the newly caught squid.

Figure 2.4.2 Type of Rod

2.5 Material Selection

The act of selecting the material best suited to meet the requirements of a certain application is known as material selection. Mechanical characteristics, chemical qualities, physical characteristics, electrical characteristics, and cost are just a few of the aspects that go into defining the selection requirements. These must be taken into account throughout the material selection process.[7]

2.5.1 Stainless Steel

Stainless steel is a corrosion-resistant alloy of iron, chromium, nickel, and other metals. Stainless steel is the most "green material" material available, as it is completely and greatly recyclable [8]. The material has exceptional strength, corrosion resistance (as demonstrated in Figure 2.5.1), and requires little maintenance. It also has a lengthy life cycle and is fully recyclable. It does not drain irritants that may cause its piece to change when in touch with components such as water. It's elegantly fascinating, exceedingly antiseptic, simple to maintain, fundamentally robust, and provides a diverse range of opinions.

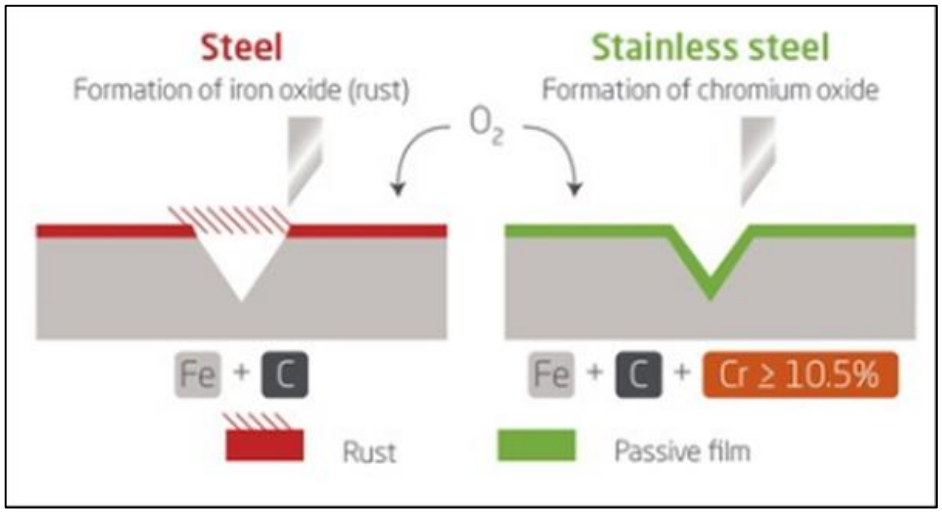

Figure 2.5.1 Different between Steel and Stainless Steel

2.5.2 Bearing

A bearing is a machine component that restricts relative motion to the intended motion alone. Bearings are widely classified based on the kind of operation, the movements permitted, or the directions of the loads (forces) applied to the components [9]. In our project, we employed ball bearings with spherical balls as rolling components, as indicated in Figure 2.5.2. These bearings functioned to oscillation the machine or to cause the shaft on both arms of this machine to revolve. Bearings are the most important component of a squid jigger because they allow the fishing line to travel upward and downward.

Figure 2.5.2 Bearing

2.5.3 Nut and Bolt

A nut is a fastener that has a threaded hole. It is used with a bolt conjugation. A bolt is a threaded cylindrical rod used to connect two items using a nut. Nuts have a unique locking mechanism that resists loosening due to vibration of the machine parts or the sections they link [10]. The nuts are used to secure the bearing and the stainless steel.To tighten the bearing and the stainless steel together, nuts and bolts, as illustrated in Figure 2.5.3, are utilised.

Figure 2.5.3 Nut and Bolts

2.5.4 Fishing Line

Fishing line is the material that is thrown from the rod, flies through the air, and rests in the depths of the sea. Monofilament fishing line (Figure 2.5.4) is the most basic and widely used type of fishing line [11]. We caught squids using fishing line in this experiment. As a lure, jigs were tied to fishing line, and instead of using a rod, we utilised the Squid Jigger machine. The shaft will spin vertically and horizontally with the line to the oblong in the centre. After then, the fishing line will fall into the water, forming an oblong with the jig. A jig is connected to the line via a line linked to a reel.

Figure 2.5.4 Monofilament Fishing Line

2.5.5 DC Motor

Direct current motors use direct current to convert electrical power into mechanical rotation. Magnetic fields created by electrical currents are used by direct current motors. Frank Julian Sprague created the first workable DC motor in 1886. The innovation of Sprague resulted in the first motorised trolley system in 1887 and the first electric elevator in 1892 [12]. To spin this machine, the Squid Jigger needed a 12V DC Motor, as seen in Figure 2.5.5. The output torque and speed of the motor are determined by both the electrical input and the motor's design.

Figure 2.5.5 DC Motor 12V

2.6 Summary of Chapter

To end this chapter, a literature review is required to highlight all of the research of materials, techniques, and concepts that have been conducted in order to improve understanding about this project. Every paper, thesis, and news item about jigging activities has provided us with a wealth of useful knowledge. This project's material option is unquestionably stainless steel owing to its recyclable qualities; however, alternative materials that are appropriate for production are also acceptable.

CHAPTER 3

METHODOLOGY

3.1 Introduction

A contextual structure for research is a coherent and logical scheme based on views, opinions, and values that directs researchers' decisions. It entails a theoretical examination of the body of methods and concepts associated with a particular branch of science. As a result of this experience, the methodologies used by various disciplines vary depending on their historical growth. This results in a series of methodologies that span competing perspectives on how information and reality should be interpreted. This places methodologies in the context of broader theories and methods. [13]

A lot of details about the method of fabricating the Squid Jigger will be explained in this chapter. There will be flow charts and methodology stages that demonstrate the beginning to end process of us constructing the entire project, along with explanations. The following is the flow work chart, which will display the real and planned activities over the course of our final 14 weeks. year project trip, while the project budget displays the overall cost of all materials used. We also provide fabrication activities including welding, drilling, cutting, and assembling to provide more precise information on Two Way Squid Jigger development. These exercises were included in almost all of the courses we took from Semester 1 to Semester 5. As a result, the development of this project will be completely explained in this chapter.

3.2 Flow Chart

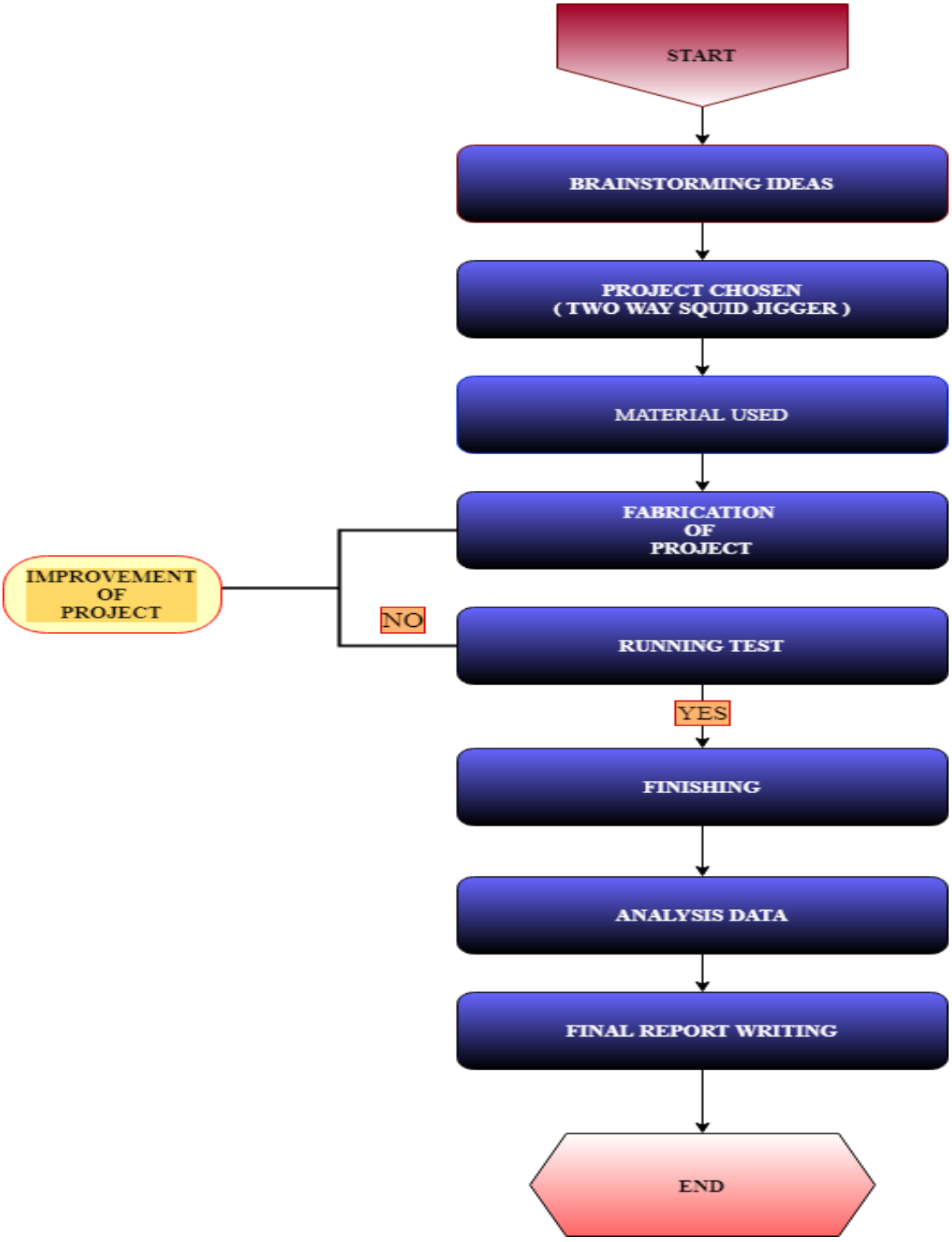

Figure 3.2 Flow Chart

3.3 Flow Chart Explanation

3.3.1 Brainstorming Ideas

One of the most significant processes in this final year assignment is brainstorming ideas. This includes coming up with creative solutions to issues and developing ideas. Possibilities were expanded, and false assumptions about the problem's boundaries were demolished.

3.3.2 Project Chosen

After much deliberation, we decided on Two Way Squid Jigger as our final year project because it contains difficulties that benefit specific parties. Furthermore, there is currently no other equipment like it in Malaysia. As a result, we will be able to localize it to Malaysians in particular. Fishers, and a price that appears to be reasonable.

3.3.3 Material Selection

The most important aspect of material selection is to talk about and decide which materials will be used in the project. Material selection must be done meticulously in order to eliminate any dangers. During the development of Two Way Squid Jigger, however, we purchased a smaller timing pulley and had to replace it with a larger one. This exemplifies the significance of project material selection.

3.3.4 Fabrication of Project

Metal fabrication is the process of cutting, bending, and assembling metal structures. It's a value-added process that involves making machines, parts, and structures out of a variety of basic materials. A fabrication company will

often make a proposal for a job depending on the specifications. Based on technical drawings, and manufactures the product if the contract is awarded.

3.3.4.1 Cutting

Figure 3.3.4.1 shows how stainless steel was chopped with a chop saw. A chop saw is a compact hand-held tool for cutting stainless steel into thinner bits. It is critical to choose the right type of blade for this process. Because minute pieces of steel can fly around while working with this instrument, it is vital to wear a full-face shield. To begin, we indicated the area where we wanted to cut and then slowly lowered the blade onto the material. Then, without pausing, slowly cut through the steel material. Finally, the remaining steel was removed and polished using a grinder with a small polishing wheel.

Figure 3.3.4.1 Cutting Stainless Steel Using Chop Saw

3.3.4.2 Welding

Welding is a fabrication method for joining materials, mainly metals or thermoplastics, by melting them together and allowing them to cool, resulting in fusion. Lower-temperature metal-joining processes such as brazing and soldering are not the same as welding. which do not cause the base metal to melt When exposed to high temperatures during welding, stainless steel can warp and even distort during the cooling phase. To join each stainless and aluminums component in this project, we used the welding procedure indicated in Figure 3.3.4.2. Arms and a base should be formed.

Figure 3.3.4.2 Welding Process

3.3.4.3 Drilling

Drilling is a machining procedure that is used to create a round hole in a work piece by drilling a hole on the component face. Drilling was used for nuts and bolts on the Squid Jigger, especially for adjustable length and height. both in length and in height Because of their varied diameters, these parts cannot be welled to link them. This machine's drilling procedure is depicted in Figure 3.3.4.3. Drilling stainless steel is challenging, but it becomes simpler with slow speed and oil.

Figure 3.3.4.3 Drilling Process

3.3.4.4 Assembly of Project

There are many parts to assemble which is base, arms, bearings, roller, switch box and motor. Figure 3.3.4.4 shows the full assembly of Two-Way Squid Jigger.

Figure 3.3.4.4 Full Assembly Project

3.3.5 Running Test

A test run is when a product or technique is put to the test to check if it works appropriately. Due of the Covid-19 Pandemic, we were unable to conduct running experiments at sea or in the ocean for this project. However, we conducted a survey to gather information and do analysis. By counting the percentages of opinions and enthusiasm for this gadget, you may deduce a lot about it.

3.3.6 Finishing

The goal of finishing operations is to change the surface of a manufactured object to achieve a specific attribute. Improved aesthetics, adhesion, solder ability, chemical, corrosion, tarnish, or wear resistance, hardness, electrical conductivity, defect elimination, and surface friction management are all desirable properties. These approaches can be used to restore original dimensions or salvage or repair a part in some instances. We proceeded to paint the engine after a few simple running tests to check if it could operate or not.

3.4 Analysis Data

Data analysis is used to extract meaningful information from data and make decisions based on that knowledge. We will examine the data collected from the survey in this project. This provides a presentation of the online survey's findings and analysis. The survey received 50 responses. All of the responders have answered all of the questions that were needed. The replies from the online survey were analyzed using the linked Google Form tool. This chapter begins by providing context for the respondents by analyzing their demographic information. This is followed by data analysis and findings. To assist reader-friendly writing, pie charts and graphs were employed.

3.4.1 Data Obtained from Survey

Two Way Squid Jigger is a machine which can increase the number of squids to be jigged. This machine does not require special skills especially to new jiggers, where one can enjoy jigging and relaxing at the same time. It can decrease the burden of not getting squids at all. The survey was carried out to collect information regarding jigging methods that are widely used until today.

3.4.2 Analysis of Pie Chart

According to the pie chart, 42 percent of respondents are interested in squid jigging activities. In the meantime, 22% are disinterested in this activity. This demonstrates that the majority of responders were enticed to attempt squid jigging. Aside from that, net and rod are the most preferred techniques among responders, with 32 percent each. In addition, 74 percent had never tried jigging and 14 percent had.

3.4.3 Respondent Satisfaction Data

According to the bar graph, 52 percent of respondents are unsure whether way of jigging squids provides the greatest satisfaction, while 46 percent agreed that this approach provides a distinct level of satisfaction. However, 52 percent of respondents agreed that a new technique is required in today's society, and 31 percent were quite certain that this machine would make life easier for the fisherman. In addition, 48 percent of respondents agreed or were unsure about this safety machine. Some responders also expressed a desire to make Two Way Squid Jigger more affordable to everybody, as well as to enhance ergonomics.

3.5 Product Design

The process of designing, developing, and iterating products that solve consumers' issues or meet unique needs in a market is known as product design [14]. The foundation, roller, oblong, timing belt, bearing, arm, and complete assembly drawing were all included in this project design. Autodesk inventor was used to create the template.

3.5.1 Design 1 (Before)

Figure 3.5.1(a) shows the base of this machine.

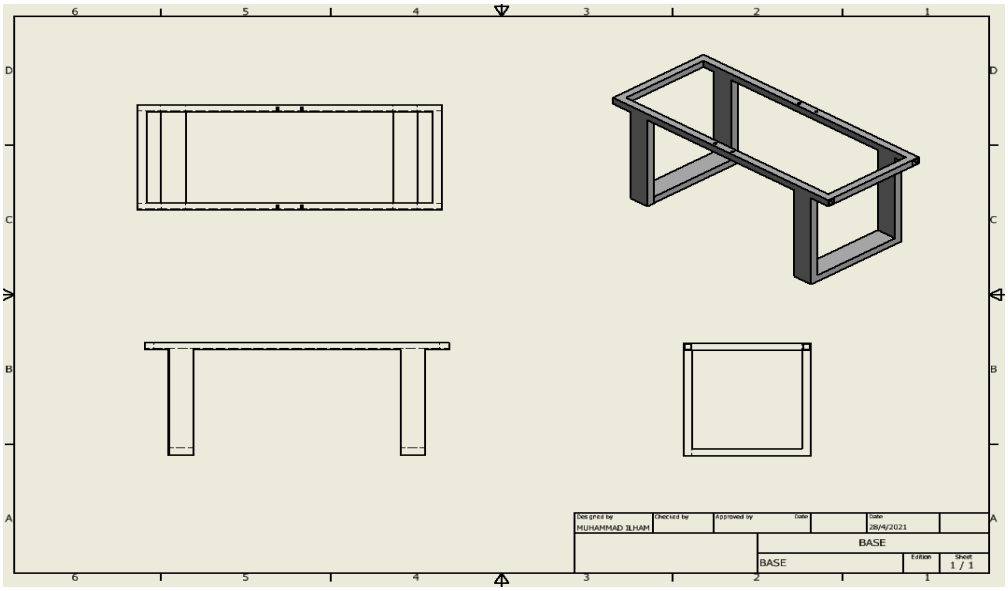

Figure 3.5.1(a) Base Drawing

Figure 3.5.1(b) shows the roller of this machine.

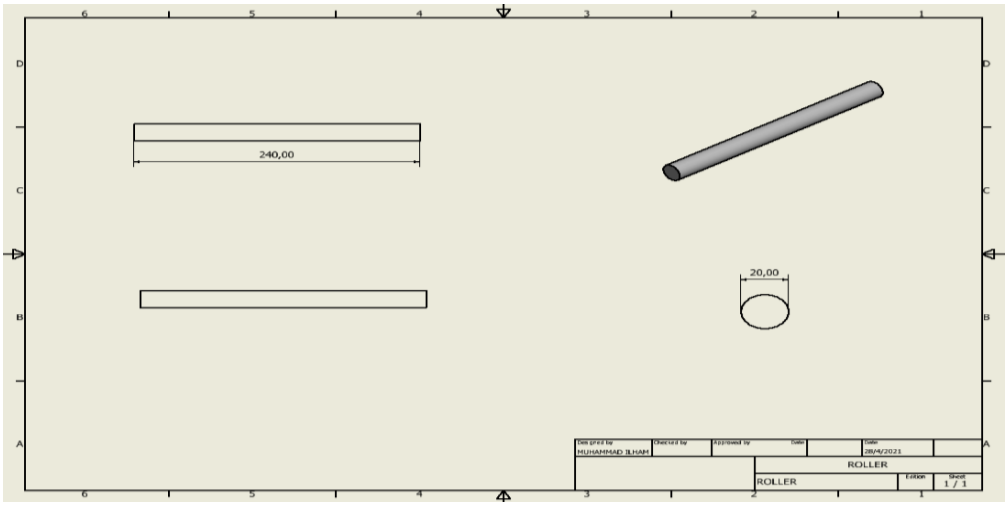

Figure 3.5.1(b) Roller Drawing

Figure 3.5.1(c) shows the oblong of this machine.

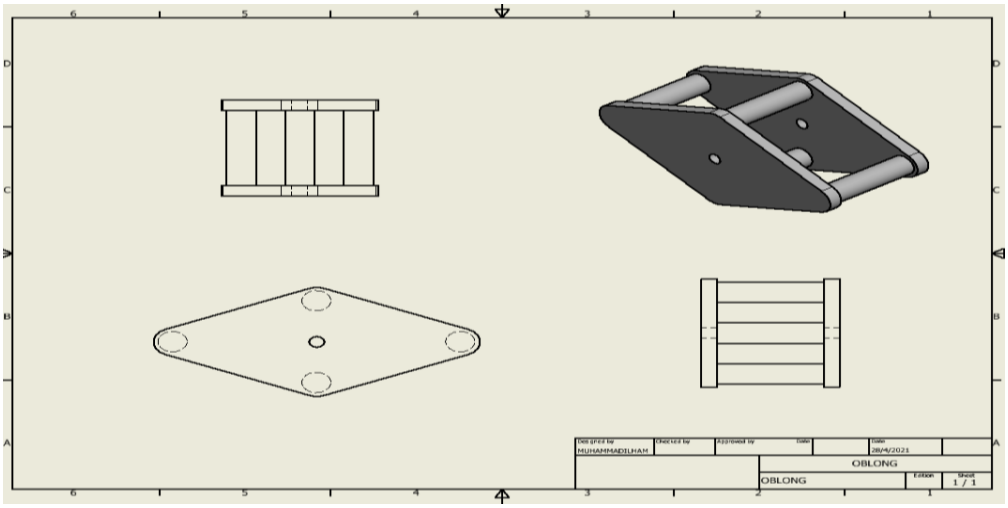

Figure 3.5.1(c) Oblong Drawing

Figure 3.5.1(d) shows the timing belt of this machine.

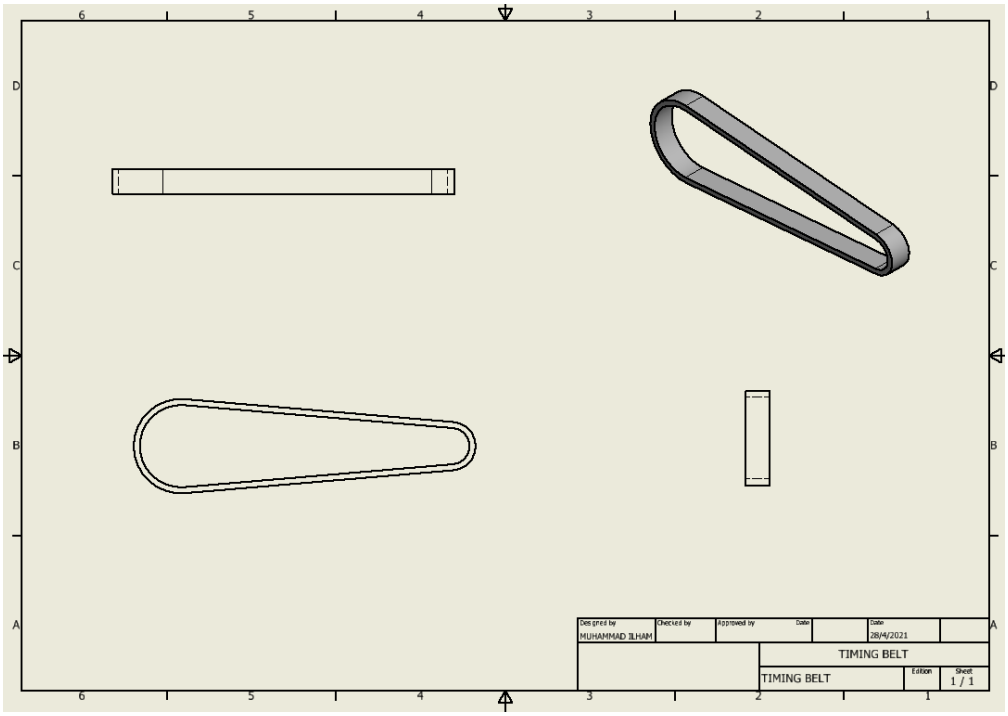

Figure 3.5.1(d) Timing Belt Drawing

Figure 3.5.1(e) shows the arm of this machine.

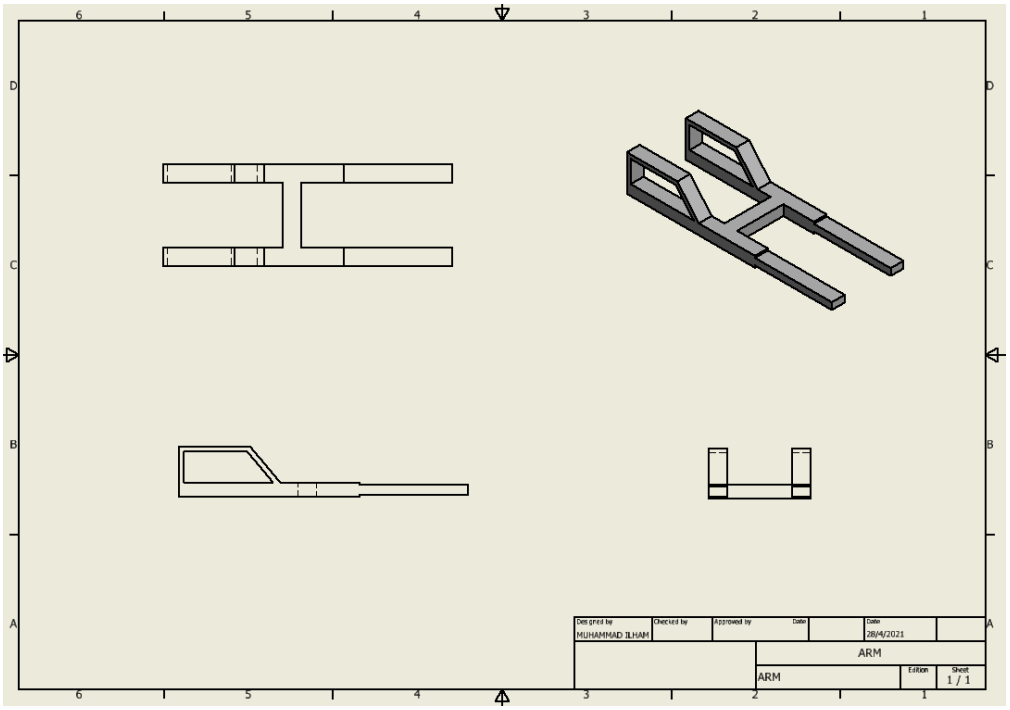

Figure 3.5.1(e) Arm Drawing

Figure 3.5.1(f) shows the full assembly of this machine.

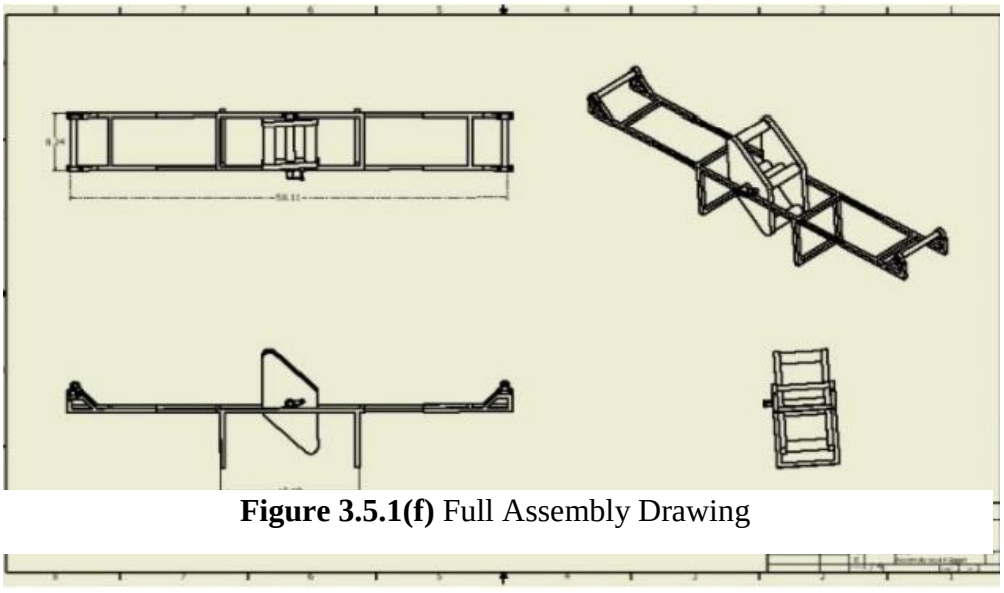

Figure 3.5.1(f) Full Assembly Drawing

3.5.2 Design 2 (After)

Figure 3.5.2(a) shows the base of machine.

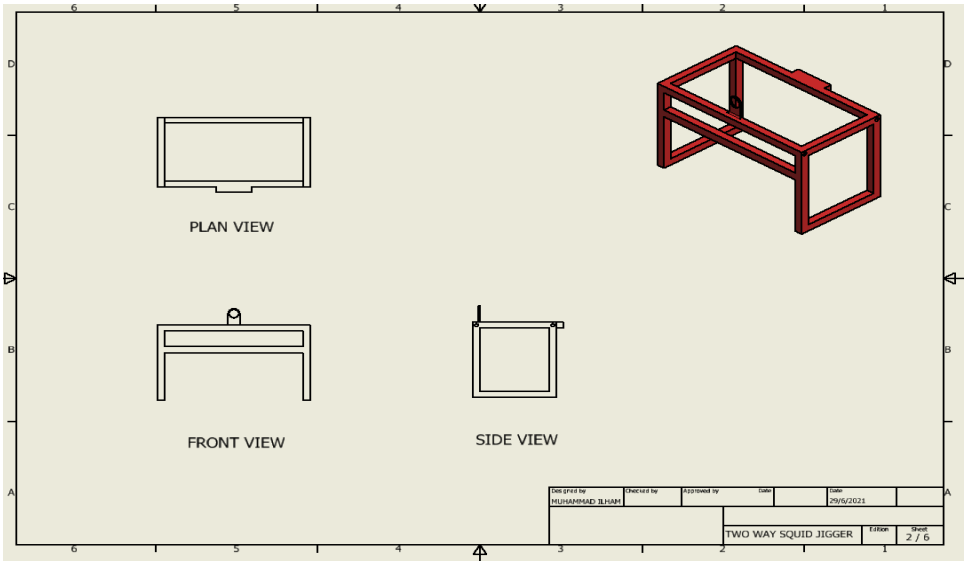

Figure 3.5.2(a) Base Drawing

Figure 3.5.2(b) shows the arms of machines.

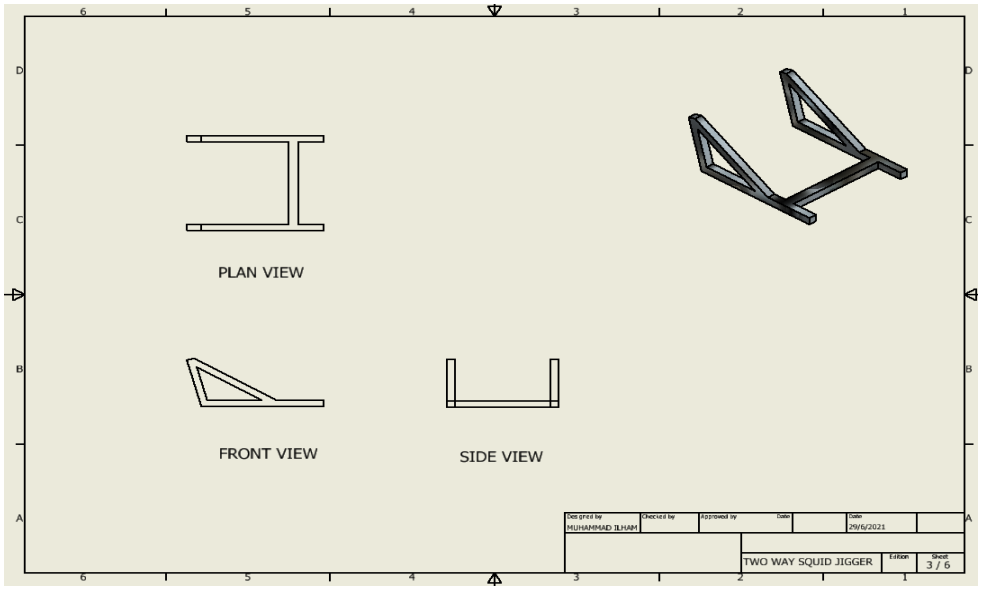

Figure 3.5.2(b) Arms Drawing

Figure 3.5.2(c) shows the bearing of machines.

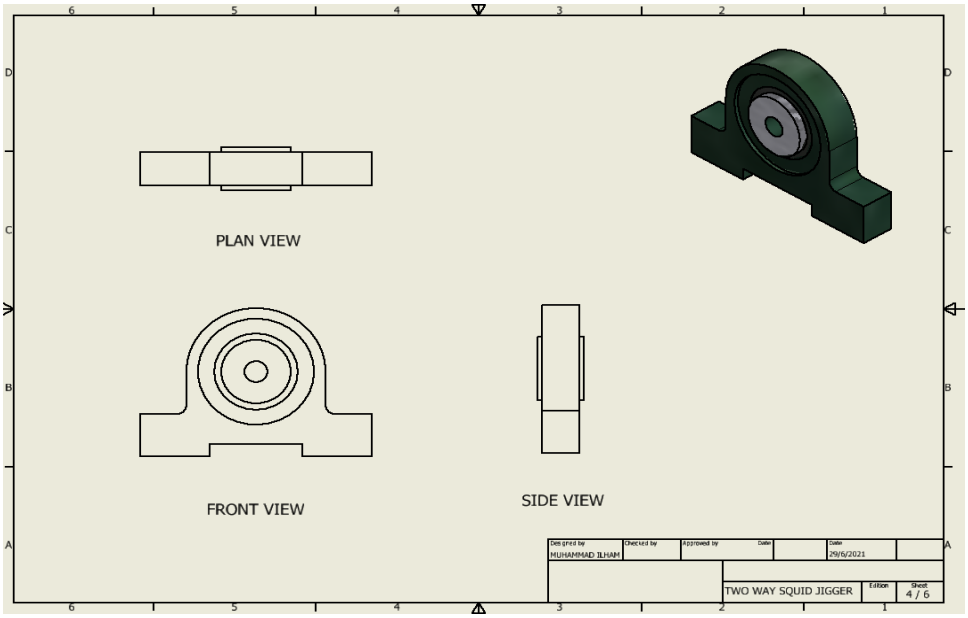

Figure 3.5.2(c) Bearing Drawing

Figure 3.5.2(d) shows the roller of machine.

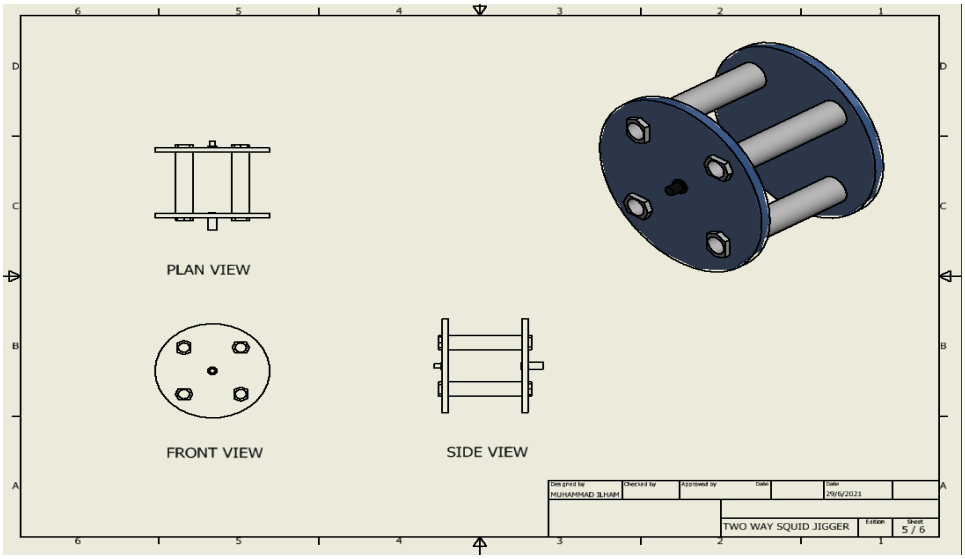

Figure 3.5.2(d) Roller Drawing

Figure 3.5.2(e) shows the switch bos of machine.

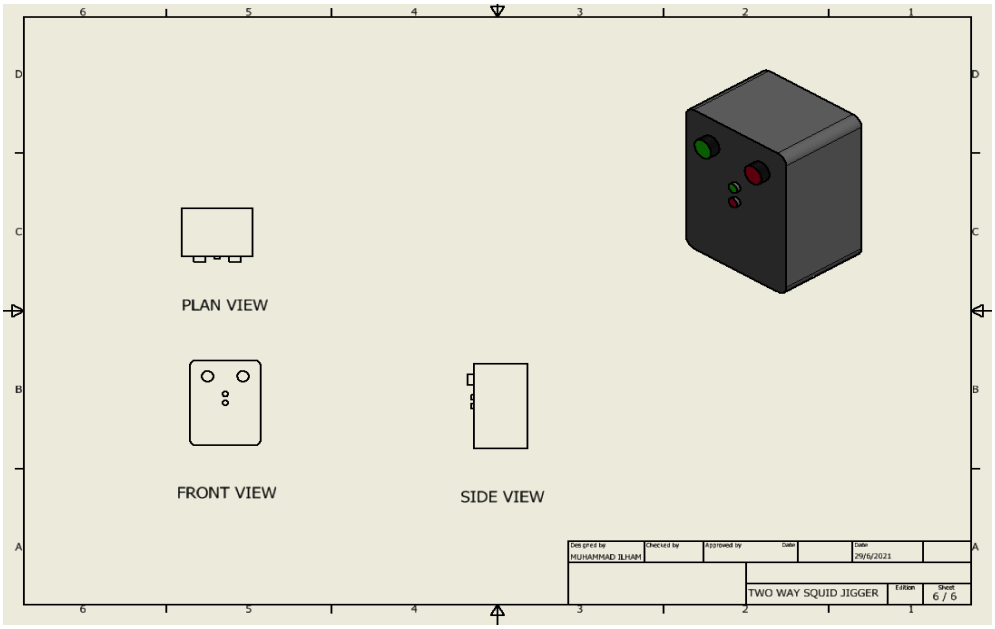

Figure 3.5.2(e) Switch Box Drawing

Figure 3.5.2(f) shows the full assembly of machines.

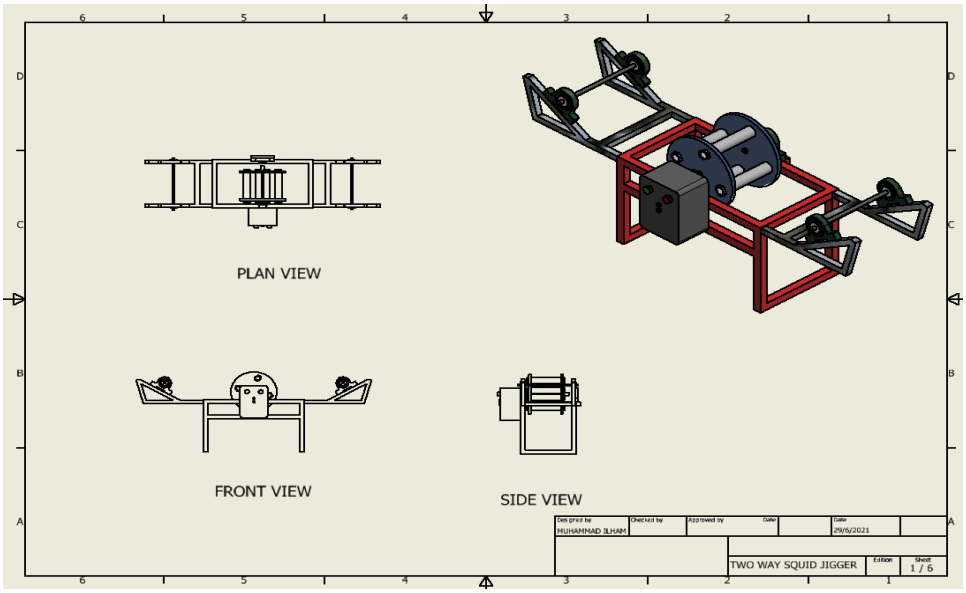

Figure 3.5.2(f) Full Assembly Drawing

The design were drawing using Computer Aided Design (CAD) INVENTOR. To draw specific detail on project drawing.

3.6 Actual Type Project

The pulley approach was used in this research. A pulley is a wheel on an axle or shaft that supports movement and direction changing of a taut cable or belt, as well as power transfer between the shaft and the cable or belt. Other than that, we attach a programme to make it move by itself. The programme we manage to find someone to help with it. The programme to the machine is to move by itself after push the button. It had time programming for how long it will go down and up. The time programming is 30s. Also , we put an emergency button for safety. Motor use for running the machine is DC 12V RPM 200. Motor directly attach to roller. This machine works two-way when the right side goes down and the left side will go up.

3.7 Budget Plan

NO	ITEM	QUANTITY	PRICE PER UNIT (RM)	TOTAL PRICE (RM)
1	DC MOTOR	1	55	55
2	ROLLER	1	65	65
3	PANEL BOX	1	90	90
4	PUSH BUTTON	2	40	80
5	CIRCUIT BOARD	3	10	30
6	CONNECTING WIRE	2	5	10
7	SPRAY	2	7	14
8	BEARING	6	18	108
9	CYLINDER STAINLESS STEEL	1	50	50
TOTAL				502
MARKET VALUE				700

Table 1: Budget Of Materials

3.8 Marketing

This TWO WAY SQUID JIGGER machine are incompatible with big ships. Ships in a big industries of aquaculture are already have its own machine to make a jigging activities. So, our marketing will be more of all small fishermen that make aquaculturer activities for gaining income. Lastly, our marketing is targeted to the water areas residents which are more tend to face with a lack of technological awareness.

3.9 Summary of Chapter

To finish this chapter, despite the fact that the project was unable to conduct a run test owing to the Covid-19 Pandemic, the survey findings are sufficient to sell Squid Jigger because there are many people who want to try it. . Furthermore, the stainless steel components employed will substantially increase their trust in this project. As the first motorised jigging machine, the production of the Two Way Squid Jigger was the most difficult component, but it provided us with a lot of experience.

CHAPTER 4

RESULT OF DATA ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter explains the study's preliminary findings of this TWO WAY SQUID JIGGER machine by connecting the theories and previous research addressed in the literature review chapter. Preferably, a discussion of the findings about the machine should be given based on the how to jig the squids in the ocean with a lot of quantity in one time . The study's findings are described in accordance with the study's aim . Based on the findings of this exploratory investigation, an innovation or fresh concept of this machine can be proposed. Significant research and their consequences for the field of study necessitate further investigation. Future research proposal enhancements / expansions can also be utilised in this chapter.

4.2 Premilinary Findings

The preliminary findings of the study towards squid jigging machine provide the outcomes and achievements of the study, whether they met or exceeded objectives, as well as plans and expectations for the completion of future research.

4.2.1 Assessment

- The existing concept of the squid jigging machine doesn’t build to accommodate a large amount of squid in one time.

4.2.2 Analysis

- Based on the research, people nowadays were not disclosed with the jigging traditional method.

- The jigging traditional method required either a fishermen or someone who needs to jig for having a skills first.

4.2.3 Comparative

- This machine , TWO WAY SQUID JIGGER meet the easier and quicker work process of jigging the squid.
- An existing squid jigging machine that were built does not facilitate work time and energy deployed is excessive.

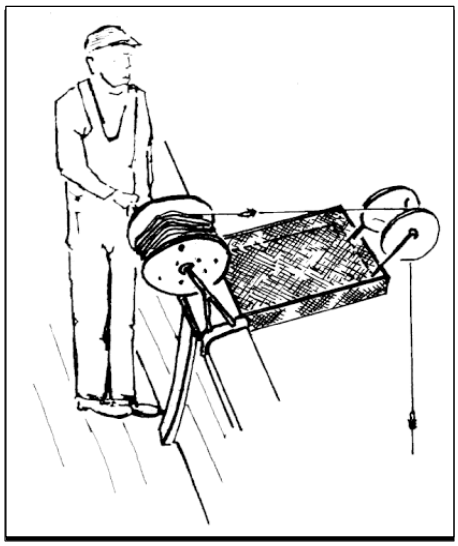

Figure 4.2.3 Existing concept of squid jigging machine

4.3 Result and Discussion

TYPE	TIME	DESIGN	METHOD	OPERATING SAFETY
TWO WAY SQUID JIGGER (AUTO)	30SECONDS (UPWARDS/ DOWNWARDS)	• ARDUINO NANO. • PUSH BUTTON. • ROLLER. • MOUNTED BEARING. • DC MOTOR.	AUTO (DC MOTOR) USING ARDUINO NANO FOR PROGRMMING.	LIMIT SWITCH.
TRADITIONAL METHOD	LONG PERIOD OF TIME	• FISHING RODS.	USING FISHING RODS.	NO LIMIT SWITCH.

Table 2: Analysis of Result

The concept is to jig the squid by using the new method (auto) that using Arduino Nano for programming the machine. Therefore, squid can be jig in a short time with huge amount. Two-way squid jigger is saving cost and time, also less man power. Fishermen on the specific areas such as residents at the water areas can make this jigging activities easier.

4.4 Summary of Chapter

This chapter explains the study's preliminary findings of this TWO WAY SQUID JIGGER machine by connecting the theories and previous research addressed in the literature review chapter. The study's findings are described in accordance with the study's aim. Based on the findings of this exploratory investigation, an innovation or fresh concept of this machine can be proposed. Significant research and their consequences for the field of study necessitate further investigation. Future research proposal enhancements and expansions can also be utilised in this chapter.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Introduction

The discussion's goal is to clarify the study's main findings and potential consequences. This section discusses the findings and techniques used, as well as the potential impact of methodological biases and mistakes on data validity. The commentary should also mention and remark on the study's overall limits and shortcomings. Importantly, the discussion of outcomes and the improvement plan should serve as the foundation for drawing conclusions. This chapter will go through the discussion, conclusion, and upgrading strategy for Two Way Squid Jigger.

5.2 Recommendation

To assist improve the benefits of utilising this equipment, the following suggestions are made to make this exercise more enjoyable. First, the squid jigging mid-roller size must be increased since the roller-to-motor ratio is not balanced. Second, the type of fishing line used to catch the squids must be modified. Third, the jig should be linked to the fishing line sparingly so that the machine is not overloaded. Finally, the iron rod must be improved since it may quickly rust when exposed to air and water.

5.3 Conclusion

The TWO-WAY SQUID JIGGER saves money and time, as well as requires less manpower. The team managed to design the project and was able to assemble the machine. Therefore, they managed to apply the skills in engineering that have learned throughout the course. This machine cannot be run a test to specific places due to pandemics and bad weather.

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APPENDIX 1

CARTA GANTT PROJEK MESIN PECANDAT

SESI DISEMBER 2020

MINGGU	STATUS	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14
AKTIVITI PROJEK															
PERBINCANGAN DAN PEMILIHAN IDEA PROJEK	P	/	/	/											
	C	/	/	/											
MEMBUAT LAKARAN IDEA PROJEK	P		/	/											
	C		/	/											
PEMBENTANGAN IDEA PROJEK	P			/	/										
	C				/										
PENYELIDIKAN TENTANG PROJEK	P				/	/	/	/							
	C				/	/	/	/							
MENYEDIAKAN ALATAN DAN BAHAN PROJEK	P					/	/	/							
	C						/	/							
MEMBUAT PROPOSAL PROJEK	P				/	/	/								
	C					/	/	/							
MENYIAPKAN PROTOTAIP PROJEK	P							/	/	/	/				
	C							/	/	/	/				
MEMBUAT PENYELIDIKAN PROJEK	P									/	/	/	/	/	
	C														
PENAMBAH BAIKKAN PROJEK	P									/	/	/	/	/	
	C														
MENGEMAS KINI PROPOSAL DAN SLIDE PROJEK	P												/	/	/
	C												/	/	/

PLANNED

COMPLETED

APPENDIX 2

GANTT CHART

	WEEK													
WEEKLY ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	13	14
PROJECT DISCUSSION														
IDENTIFICATION OF PROJECT MATERIAL														
PROJECT FABRICATION														
PROJECT IMPROVEMENT														
PROJECT TESTING														
PRESENTATION OF PROJECT														
COMPLETION OF FINAL YEAR REPORT														

APPENDIX 3

PRODUCT DESIGN

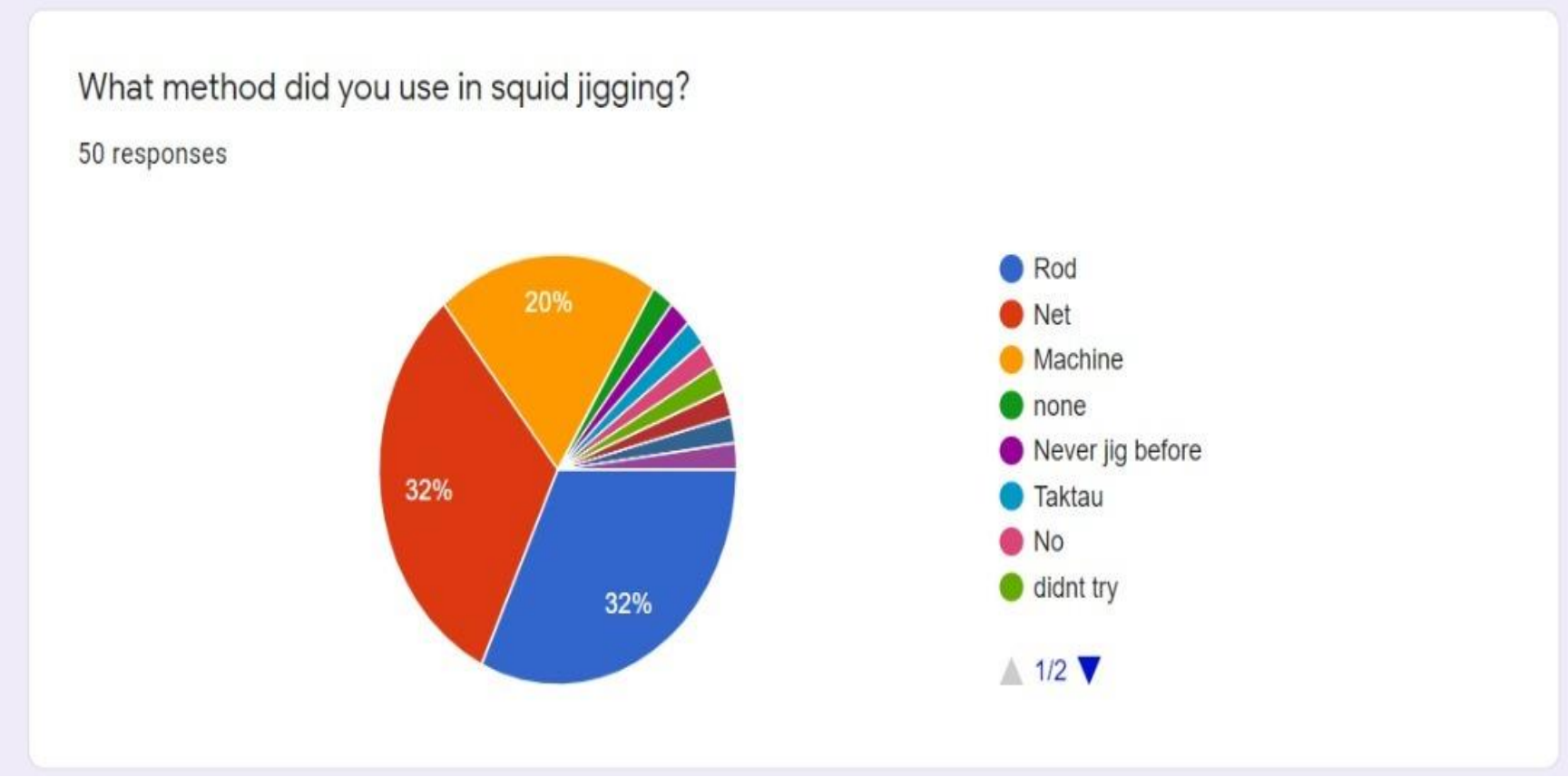
APPENDIX 4

PRODUCT COST

NO	ITEM	QUANTITY	PRICE PER UNIT (RM)	TOTAL PRICE (RM)
1	DC MOTOR	1	55	55
2	ROLLER	1	65	65
3	PANEL BOX	1	90	90
4	PUSH BUTTON	2	40	80
5	CIRCUIT BOARD	3	10	30
6	CONNECTING WIRE	2	5	10
7	SPRAY	2	7	14
8	BEARING	6	18	108
9	CYLINDER STAINLESS STEEL	1	50	50
TOTAL				502
MARKET VALUE				700

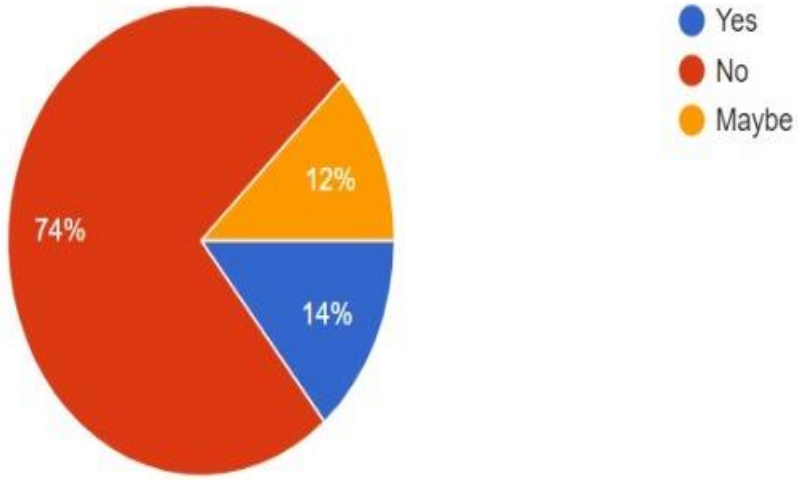
APPENDIX 5

SURVEY RESULT



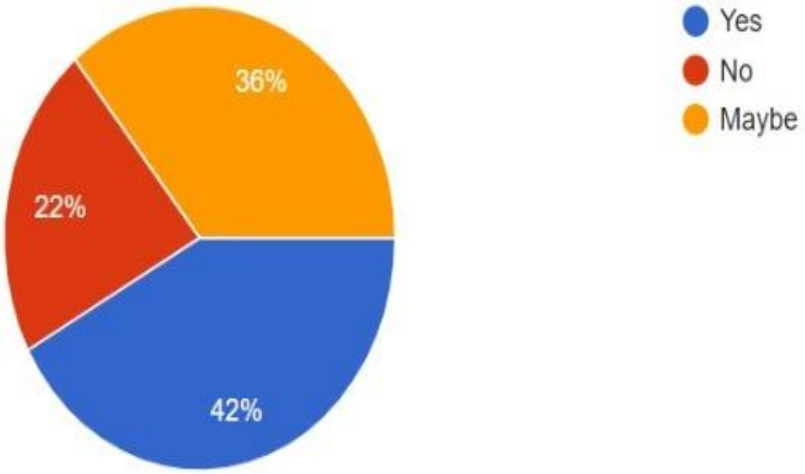
Did you have any experience in squid jigging activities?

50 responses



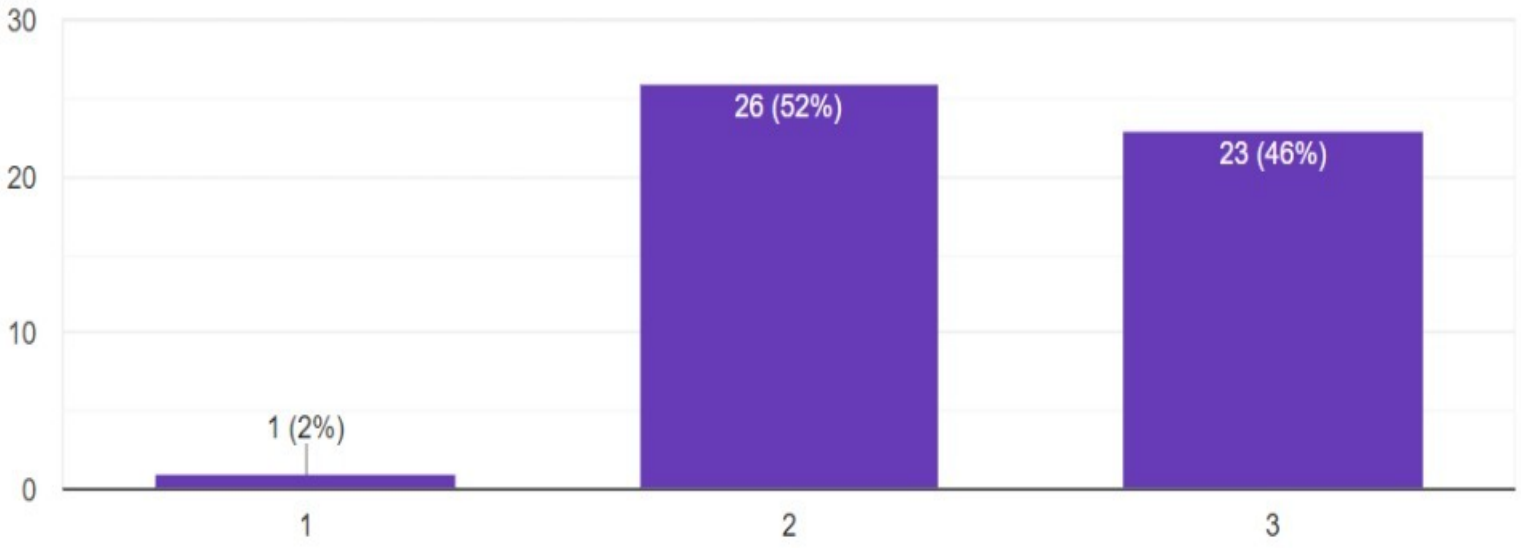
Did you interest in squid jigging?

50 responses



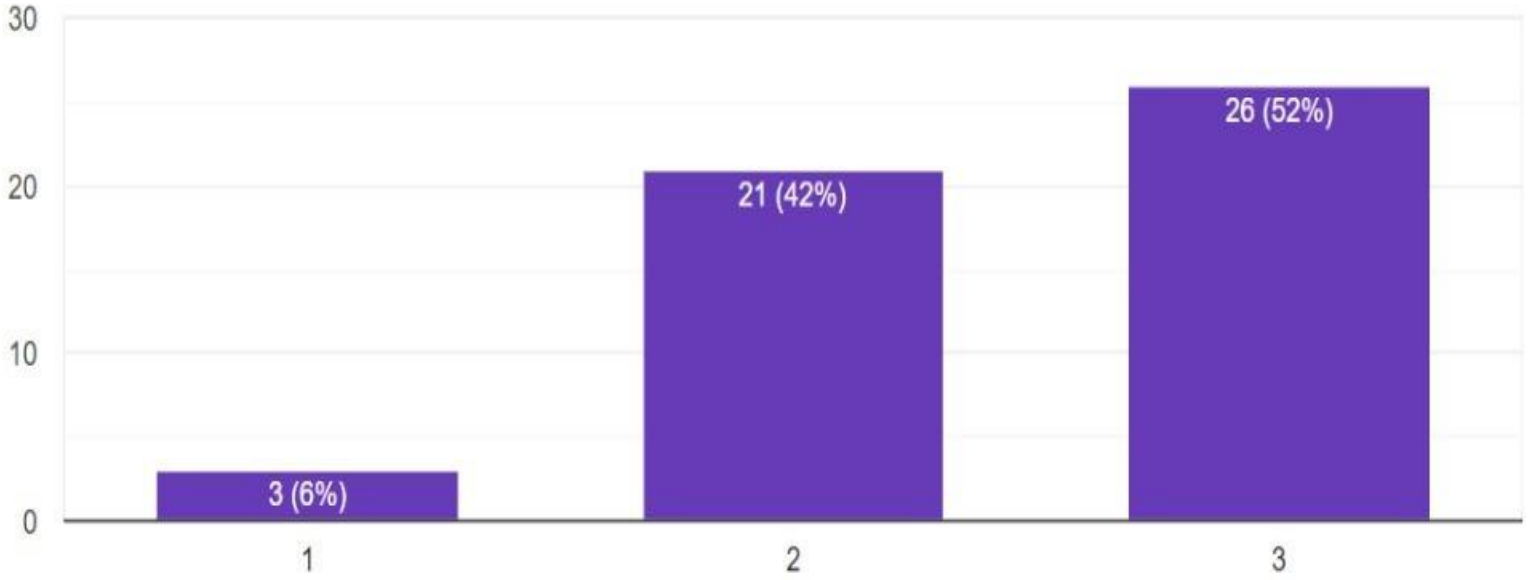
Did use traditional method or machine give you any different satisfication in this activities?

50 responses



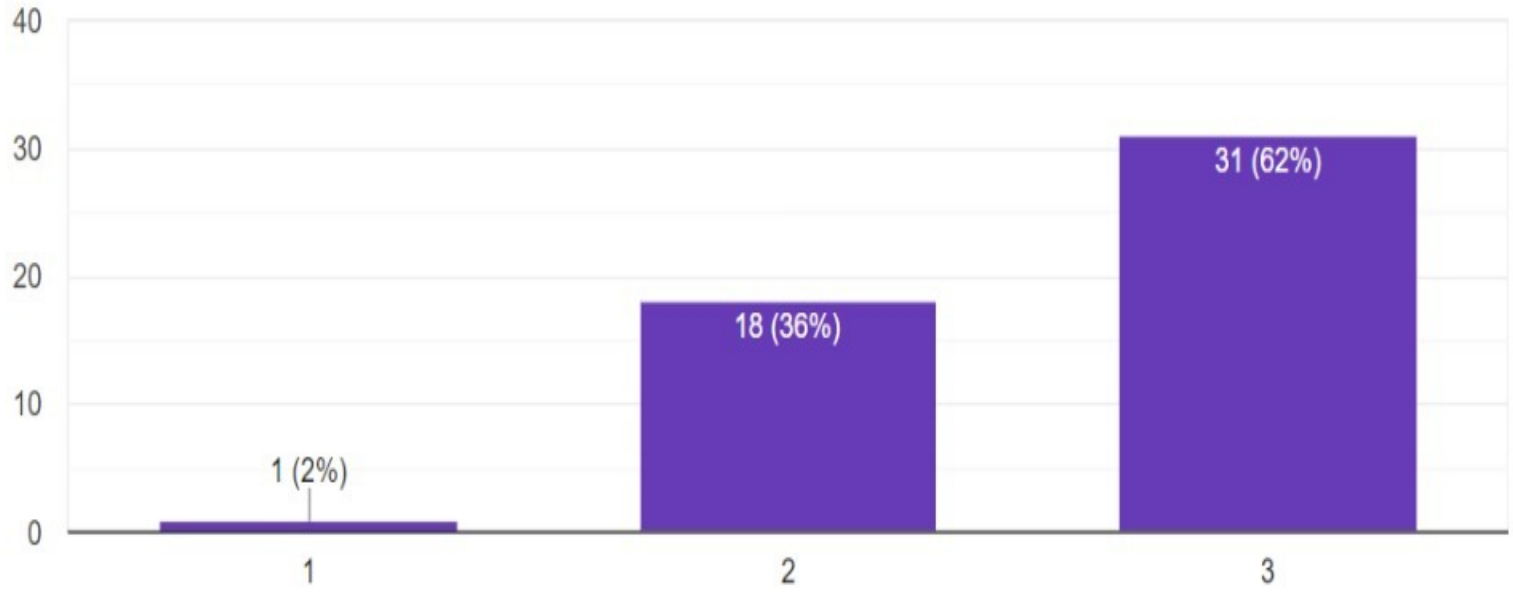
Squid jigging is essential to society nowadays?

50 responses



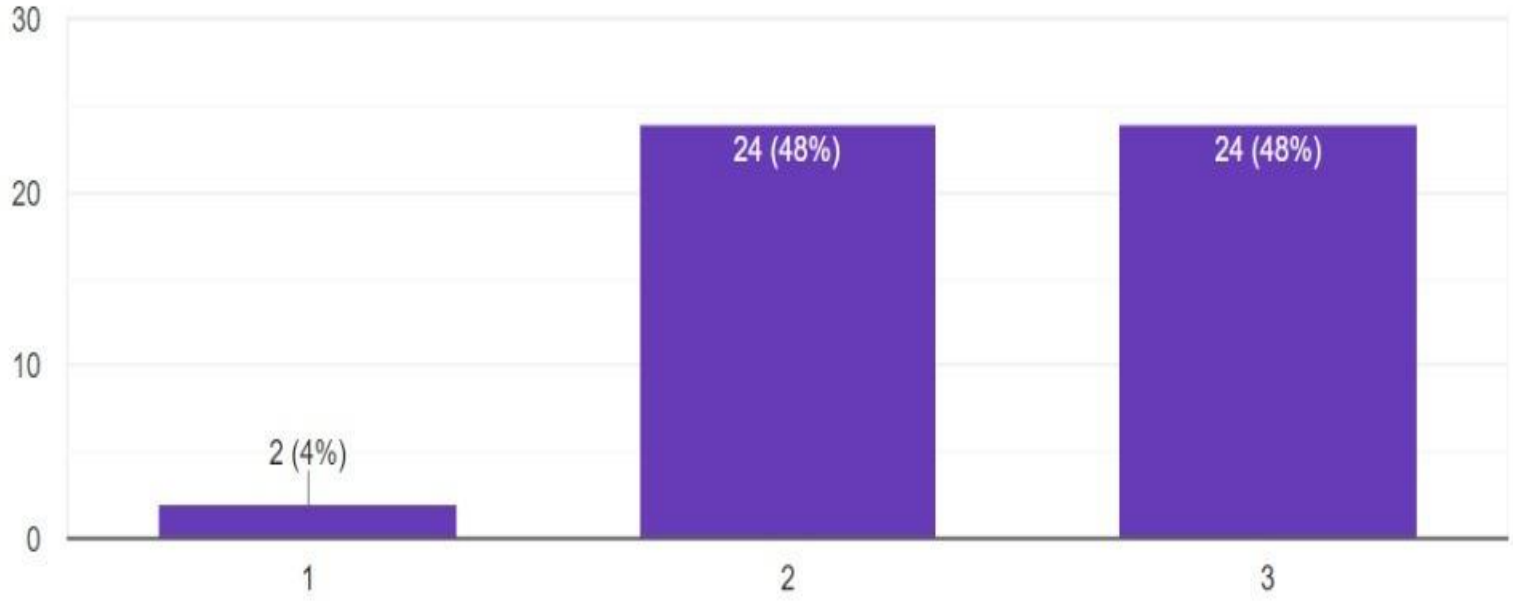
This machine makes it easier for fisherman to catch squid.

50 responses



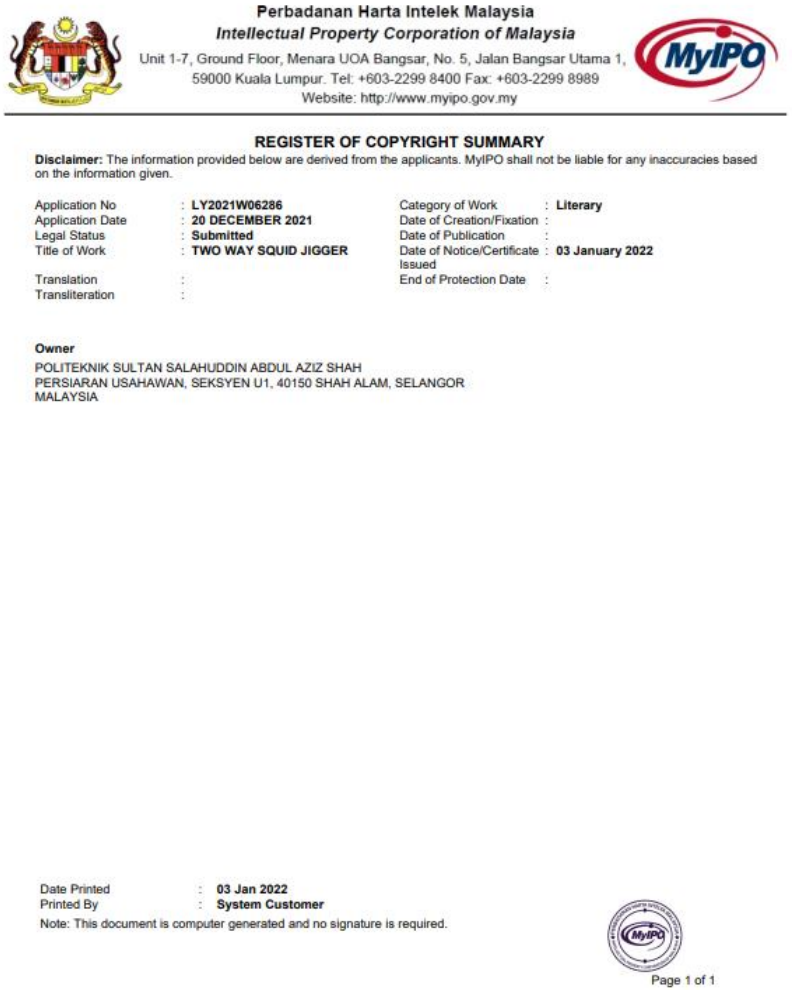
If a squid jigging machine is used, the jiggers can avoid injury?

50 responses



APPENDIX 6

ORIGINALITY MYIPO



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