



## **PROJECT PROPOSAL REPORT**

### **FLOUR SIEVING MACHINE**

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**SESI 1 : 2021/2022**

# DECLARATION OF ORIGINALITY AND COPYRIGHT

## FLOUR SIEVING MACHINE

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2. We acknowledge that the 'Project described above' and the intellectual property offered through it are the result of our original work/design, and that we have not stolen or replicated any intellectual property from other parties.
3. We agree to relinquish ownership of the intellectual property of 'the Project' to 'The Polytechnic' to meet the requirements for the award of the **Diploma Mechanical Engineering** to us.

## **ACKNOWLEDGEMENT**

Praise and gratitude to Allah S.W.T for providing me with sufficient physical and mental power to complete my final year project up to completion. Here I express my infinite gratitude and thanks to my supervisor, Dr Norasiah Binti Muhammad , for her unwavering support, guidance, sharing of opinions and unfailing patience throughout the project's duration. Under her guidance, I've learn a lot, both practically and intellectually. Aside from that, I owe a debt of gratitude to my parents and all of my friends who have aided me in the implementation of this project by providing feedback.

Last but not least, a million thanks to everyone who helped make this project a reality, whether directly or indirectly. The assistance provided to me was invaluable, from the tiniest to the largest.

## **ABSTRACT**

A sieve was a device that used a woven screen, such as a mesh or net, to separate desired elements from undesired material or to characterise the particle size distribution of a sample. The main problems of the sieve was it required a lot of human energy and requires a long time to sieve the flour. The sieve could not sieve in a large amount due to their size and capacity and made the user felt tired quickly made it a massive chore to do. Methodology was the rules or procedures used to implement the project in detail. Dinamo grater was our project concept which was this project used rotation from electric power to made this machine moved automatic. The weight of flour that could be sifted by the machine in the one time was 5 kg , require 30 minutes to complete one cycle of sieving and estimated 20 kg for this machine weight. Project planning and phases were made and being implemented during the project production in order to ensure the process went smoothly. It also helped to as a reference to ensure that we achieve the objective on time. For recommendation , our project would sift 10 kg flour in one time , had a 10 kg weight and could sift 5 - 20 minutes for completed one cycle of sieving

## **ABSTRAK**

Ayak ialah peranti yang menggunakan skrin tenunan, seperti jaring untuk memisahkan unsur yang dikehendaki daripada bahan yang tidak diinginkan atau untuk mencirikan taburan saiz zarah sampel. masalah utama ayak ialah ia memerlukan tenaga manusia yang banyak dan memerlukan masa yang lama untuk menapis tepung. Ayak tidak dapat menapis dalam jumlah yang banyak kerana saiz dan kapasitinya dan membuatkan pengguna berasa letih dengan cepat menjadikannya tugas yang besar untuk dilakukan. Metodologi ialah peraturan atau prosedur yang digunakan untuk melaksanakan projek secara terperinci. Dinamo grater adalah konsep projek kami yang mana projek ini menggunakan putaran daripada kuasa elektrik untuk menjadikan mesin ini bergerak secara automatik. Berat tepung yang boleh diayak oleh mesin dalam satu masa ialah 5 kg, memerlukan 30 minit untuk menyelesaikan satu kitaran ayak dan dianggarkan 20 kg untuk berat mesin ini. Perancangan dan fasa projek telah dibuat dan dilaksanakan semasa pengeluaran projek bagi memastikan proses berjalan lancar. Ia juga membantu sebagai rujukan untuk memastikan kami mencapai objektif tepat pada masanya. Untuk cadangan , projek kami akan menapis 10 kg tepung dalam satu masa , mempunyai berat 10 kg dan boleh menapis 5 - 20 minit untuk menyelesaikan satu kitaran penapisan

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# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 RESEARCH BACKGROUND**

A sieve is a device that uses a woven screen, such as a mesh or net, to separate desired elements from undesired material or to characterise the particle size distribution of a sample. This project focuses on the design and construction of the machine's mechanical element as well as the sieve machine's system. To meet this project's goal, the body structure and mechanical system of the sieve machine must consider other factors such as strength, safety, and ergonomic design. A sieving machine is a machine that separates particles into distinct levels based on their mesh size. It is common in many businesses, such as pharmaceuticals, to want to reduce particulate matter in the community. The holes in a little sieve, such as one used for sifting flour, are exceedingly small. Sieves with various types of holes are employed depending on the types of particles to be separated. Separating stones from the sand is also done with a sieve. A metallic plate or sheet, or other similar device, with uniformly spaced perforations installed in an appropriate frame or holder, for separating material by size. A number that represents the size of a sieve, usually the number of apertures per inch. The normal size of openings in a testing sieve, commonly between cross wires.

### **1.2 DEFINE RESEARCH TITLE**

The research of the topic, automatic sieve machine, was chosen as our title as a result of a group discussion. We conduct some research in order to come up with a good title, and based on our problem definition, we develop an automatic sieve machine. As we can see, the most serious problem stated in the problem statement was that the sieve could not filter a considerable amount due to its size and capacity. The user who wishes to filter the flour must do it in small increments. So, after reaching an agreement with a groupmate, we bring it to the supervisor, who gives her full approval.

### **1.3 PROBLEM STATEMENT**

Sieve is one of the common cooking utensils that every household and bakery shop has in their kitchen. One of the main problems of the sieve is it required a lot of human energy and requires a long time to sieve the flour. This will make the user feel tired quickly make it a massive chore to do. In addition to this, if the bakery or household that want to sieve a large amount of flour. The sieve cannot sieve in a large amount due to their size and capacity. The user that wants to sieve the flour needs to do it little by little to sieve the flour. Furthermore, this also will impact the bakery production line and manufacturing. This is because the manual sieve is inefficient to use to make a lot of product that is needed to be made due to its lack in certain aspects. This will make the bakery keep their production in line.

## **DEFINE PROBLEM STATEMENT**

A problem statement is a description of a current issue or problem that has to be addressed right now. This phrase succinctly summarises the existing problem's barrier between a functional process and/or product and the current (problematic) situation. This statement is entirely objective, focusing solely on the facts of the problem and omitting any subjective viewpoints. To make this process go more smoothly, ask who, what, when, where, and why in order to structure your problem statement. This makes it easier to write and read, as well as making the problem more understandable and hence solved.

## **IDENTIFY ENGINEERING PROBLEM STATEMENT**

It is a fact that the conventional flour sieve used nowadays are rapidly evolving in term of design, dimension and mechanism. For instance, various type of flour sieve can be found at any store with numerous kind of features build to fulfil consumers need. There is flour sieve that is created environmental friendly. But above all, none of them are able to fix the issue of a process of sifting flour that takes a long time to complete and help to make consumer and can help users to shorten the flour sifting period. Hence, this project will bring a lot of benefit not just to the consumers, but also will benefit bakery and flour -based shop as it will attract more customer by eliminating these problem In addition. Thus, this project will be a crucial way to introduce new innovation technologies to the people, helping them to understand, adapt and learn these new ways to execute work

## **IDENTIFY THE CHARACTERISTIC OF PRODUCT**

We use dynamo grater for programming this machine because dynamo grater is able to generate better electricity, it can also save time, therefore it is an electric generator that can follow the appropriate product specifications.

## **1.4 OBJECTIVE OF PROJECT**

The objectives of this project are:

- ❖ To design a prototype of electric powered sieve machine that are easy to use.
- ❖ To develop a prototype of electric powered sieve machine that can sieve a large amount of flour at the same time.
- ❖ Test the ability of the prototype electric powered sieve machine in solving the problems.

## **1.5 PROJECT SCOPE AND LIMITATIONS**

Flour sieve machine is specifically fabricated to help to make consumers sift flour faster and avoid wasting time to cooking.

The scope and limits to this research are:

- ❖ The flour sieve machine able to reduce timed to sift a flour during cooking process.
- ❖ The flour sieve machine is able to fulfil the IR 4.0 trend requirement.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.0 INTRODUCTION**

This chapter will provide a review about the previous research and existing project that have been made by using reference sources and guidelines as journals, internet, article writing, blog and scientific studies to get an idea about the project design, conception and any information that related to improve the project. Other people have created and innovated projects with different concepts and designs. This chapter also covers the research that is relevant to this endeavour.

#### **2.1 PREVIOUS RESEARCH**

##### **SIEVE**

A sieve, also known as a sifter, uses a woven screen, such as a mesh or net, to separate desired parts from undesired material. A sifter is used in cooking, particularly with flour, to aerate the mixture, among other things. A strainer is a sieve that is commonly used to filter solids from liquids. The term "sift" comes from the word "sieve." Sieving or sifting is a simple and practical method for separating particles of various sizes. Small holes in a small sieve, such as those used for sifting flour, allow only very fine flour particles to pass through. The coarse particles are retained in the sieve or ground against the screen panes to break them up. Sieves with various types of holes are employed depending on the types of particles to be separated. There are several types of flour sifter, each with a different way to use it. The traditional type of flour sifter is the sifter shaker cup. As the name suggests the way to use the sifter is to shake the flour by using this to remove any clump from the flour. With a squeeze sifter, you squeeze the handle to release the flour through the mesh screen. The last one is the crank sifter. In most cases, bakers with arthritis or hand injuries prefer a crank model because it doesn't require as much hand strength to operate as a squeeze sifter. The benefit of a squeeze sifter is that it allows for one-handed operation. Our target in this project is to make a fully electric-powered flour sifter that is easy to use and save some processing time that is needed for a small bakery or household. Besides, we also will make some improvements to the flour sifter such as the mesh screen and the capacity of the machine.

## HISTORY

Jacob Bromwell is a privately held American cookware and household goods designer, producer, marketer, and distributor. It is the oldest housewares company in the United States, having been founded in 1819. The Original Popcorn Popper, Classic Tin Cup, and Legendary Flour Sifter are just a few of the company's historically notable goods. The Original Popcorn Popper is one of the firm's oldest and best-selling products, having been manufactured with the original equipment and dies since the late 1800s, when the company purchased the patent from its inventor, William Wood. They were originally marketed for \$3.50 per gross at wholesale. Thomas G. Melish, a descendent of Jacob Bromwell, patented the Legendary Flour Sifter in 1930.



Figure 2.3.1: Thomas G.

Melish Jacob Bromwell (born 1785), a War of 1812 soldier and entrepreneur, used a flatboat to travel from Baltimore, Maryland to Cincinnati, Ohio. When he founded The Bromwell Brush and Wire Co. in 1819 and filed for incorporation on February 12, 1883, he became the first wire goods manufacturer. The company provided a wide range of household items to pioneering families. In downtown Cincinnati, Ohio, he established his company in a six-story skyscraper at 181 Walnut Street. The company occupied all six levels and had a catalogue of over 1,000 products, many of which had won prizes.



Figure 2.3.2: The legendary flour sifter

The Legendary Flour Sifter by Jacob Bromwell was still sold and use to this day. Nowadays there is a lot Of new design of flour sifter that is inspired by the legendary flour sifter. This shows that flour sifter gives an important impact on the industry such as the bakery. Without this invention, bakery and even homemade cake or cookies are hard to produce.

## RESEARCH ON TYPE OF SIFTER

- **Crank Sifter**



Figure 2.4.1: Crank Sifter

The crank flour sifter needs human energy to operate. we rotate the crank to rotate the wires that scrap the bottom steel mesh to break up and mix all the flour. It is a good product and ergonomic. Sometimes bakers love to use this because of bakers with arthritis or hand injuries can use this with ease.



- **squeeze sifter**



Figure 2.4.2: Squeeze Sifter

The squeeze sifter also need human energy to operate. when the handle is squeezed, the mesh screen in a bowl shape that is located in the cup will rotate and the flour will go through the mesh and eliminate any lump from the flour.

- **Flour sieve**



Figure 2.4.3: Flour Sieve

This next flour sifter is actually called a flour sieve as it has a completely different design. To use it, just place flour in the cake pan shape sifter and shake it back and forth to send the flour through the mesh screen.

## **OPERATION DESIGN**

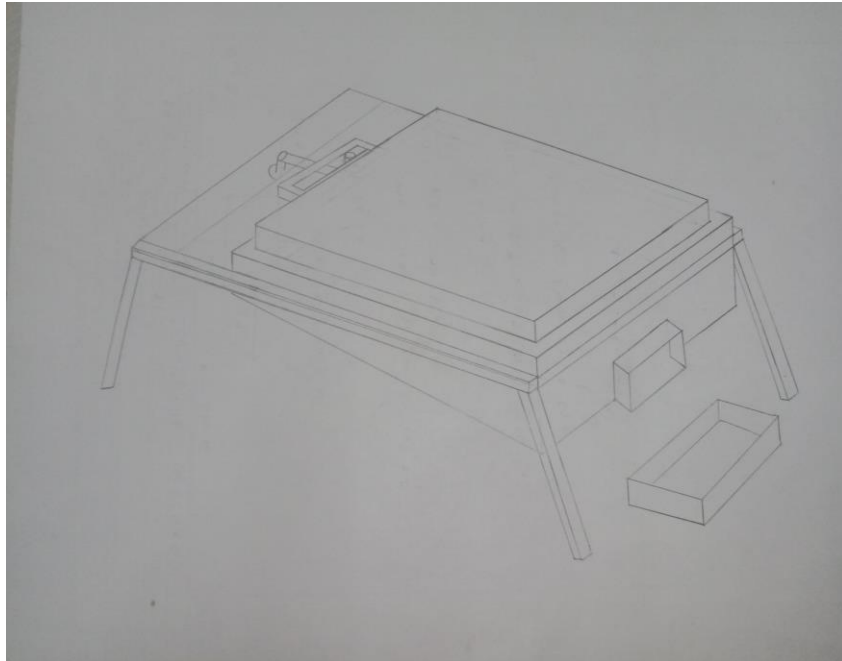


Figure 2.4.4

This design was made after doing some research and discussion to ensure the design can fulfil the objective of the project and the problem statement. After designing a lot of the prototype, this is the one that we choose that show the most potential to the success of this project.

### **SUMMARY OF CHAPTERS**

In this chapter, it is an explanation on how literature reviews were done and the reasons why this project has been selected. There are many of case study stated and related to our project regarding to improve flour sieving machine. Since the traditional and common sieve use a lot of human energy, it will work less efficient. The existing sieve are less on productivity compared to flour sieving machine. Therefore, in chapter 3 there will be explanations of the methodology of project on how the project are made and assembles.

## **CHAPTER 3**

### **METHODOLOGY**

#### **3.0 INTRODUCTION**

Methodology is the rules or procedures used to implement the project in detail. This step is very important step in the implementation of this project to ensure the project is successfully completed at set times. Furthermore, in this chapter, there are many methods used in order to finish the project. In producing a project, this step that must be taken before the project is completed. These steps should be done with the utmost precision in order to produce a quality project. The result of this project, there are some steps have been made. The next topic is topics selection.

Selection of topics is very first step before starting work encountered work related to the project. The project title should be appropriate to the level sought diploma as a final project for the course Diploma in Mechanical Engineering.

In addition, the selection of appropriate projects to help power the creative and innovative thinking as well as it symbolizes the level of consciousness of a person.

After the project is selected, the title of the project should be selected based on its ability to attract others to know more about the project closely. Tittle that attracts the attention of others symbolizes the initial status of the project.

After an appropriate tittle is chosen, the step that must be taken is to choose components to the project to be made. This is because the materials are difficult to be found will have an impact on the projects to be made because it will probably take a long time to get it.

#### **3.1 METHOD USED**

This technique for method selection is critical for ensuring that the method chosen is exact and appropriate for the product. This method of approach selection will save our money and time. As a result, completing the technique selection procedure is crucial.

## DINAMO GRATER METHOD

A dynamo is an electrical generator that uses a commutator to generate direct current. The first electrical generators capable of supplying power to industry were dynamos. In our project, the function of this grater dynamo is to move the flour sieve so that the flour can be sifted. Then the sifted flour can be sent to a flour distributor before being channeled into a container. The main purpose of using this dynamo grater is because it uses electrical energy, this will facilitate the sifting process because the source of electrical energy is easily found.

### 3.2 PRODUCT DESIGN

This section is specifically about the project design. A 3D, Isometric, Orthographic Projection, Part Assembly and Exploded drawing has been drawn fully by using Autodesk Inventor Software. This step is very crucial, as it determine the specification of our Automatic Sieve Machine and determine how the finishing of our project would look like.



Figure 3.2.1

Next, the Automatic Sieve Machine was designed accordingly to the real dimension. With a total dimension of 790mm length, 580mm width and 950.5mm height, this casing contains a total of 13 parts which consist of:

- ❖ Sieve container ×1
- ❖ Top cover ×1
- ❖ Upper body ×1
- ❖ Lower body ×1
- ❖ Wheel ×4
- ❖ Dynamo grater ×1
- ❖ Connector ×2

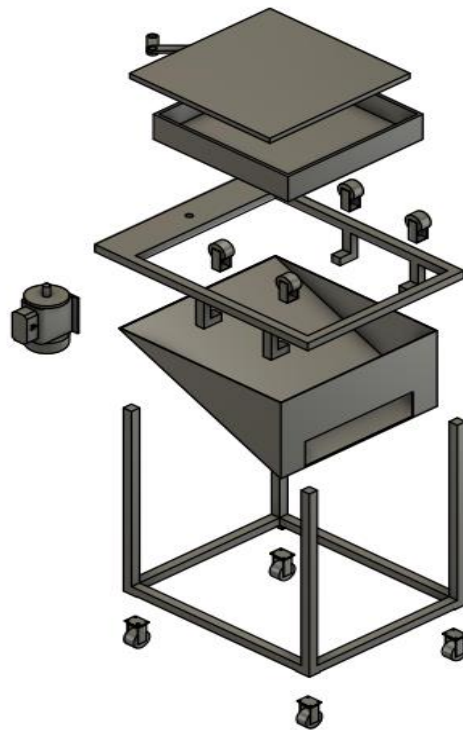
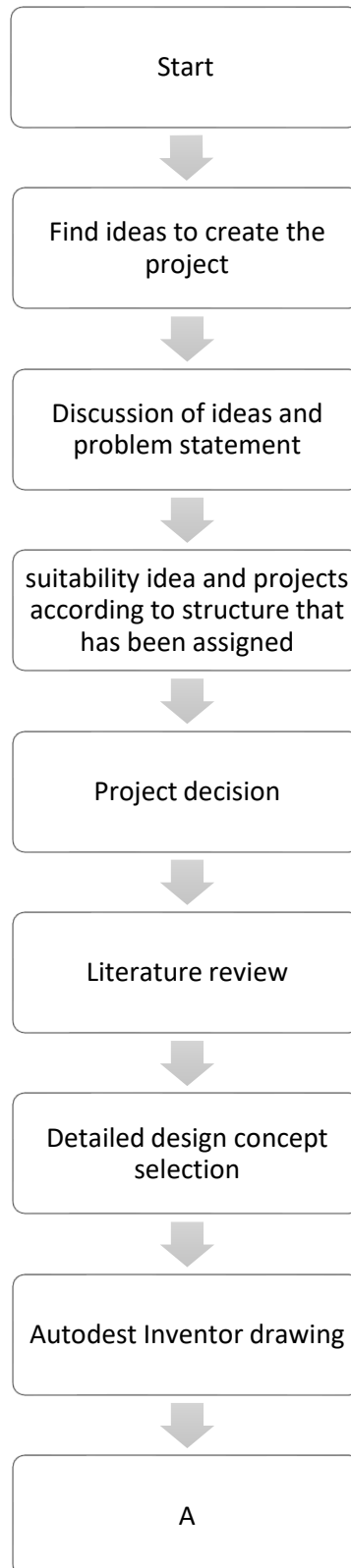


Figure 3.2.2

### 3.3 PROJECT PLANNING



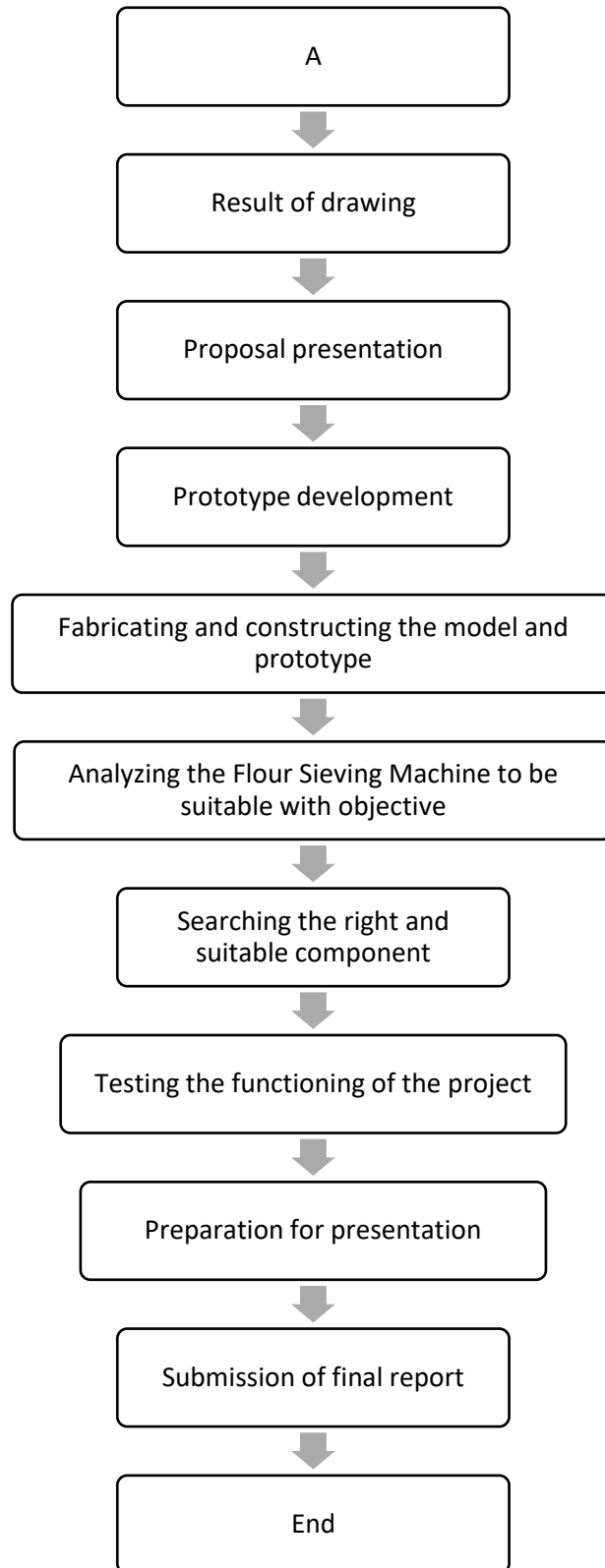


Figure 3.3.1: I & II Flow chart of the methodology

## METHODOLOGY PHASES

### **i. Find ideas to create the project**

Idea 1: Manual road cleaner machine

Idea 2: moveable stairs

Idea 3: Automatic sieve machine

### **ii. Discussion of ideas and problem statement**

Idea 1: Not commercial to do this project

Idea 2: Many people have done this project

Idea 3: We take this idea as our project

### **iii. Literature review**

The literature review is aimed to obtain information and data from previous researches to know the background and the problems of this project. With an earlier stage or studies, every problem can be identified and addressed. Therefore, a Flour Sieving Machine was established. It will assist one's work in baking. This project is more focused to a place like bakery and caterer.

### **iv. Generation and selection of concept**

In a process of designing, generating and selecting design concepts need to be done in detail so that the project produced effective and a good impact on consumers. This is because effective project can be used in a long time and more durable.

### **v. Detailed design**

Detailed design is done in order to ensure the project meets the requirements of users. In addition, it can follow all the aspects which have been set as not to drop out from the project scope. By doing this income, detailed design projects are more effectively.

### **vi. Availability and cost**

In manufacturing process, the cost has to be emphasized that the expenditure does not exceed out from the expenses scope. Therefore, the importance of survey need to be done before selection of materials is made.



## **SAFETY MEASURE**

Safety in operating the project toward the user is one of the important things that must be think about. The safety measure that have been done in this project is as follow:

- 1) Every sharp corner in the product has been grind to make it dull in order to avoid injuring the user.
- 2) The wheel on the product can be locked to ensure the product does not move when it being used.
- 3) A wall has been made to ensure the carriage does not derailed when it is powered on.

## **COMPONENTS AND MATERIAL SELECTION**

To ensure an effective product are being made, the study of every part and material used need to be done. This is so that the best solution to the main problem can be develop and so that other kind of product error that can lead to new kind of problem can be avoided.

### **Follows:**

- ❖ Sieve (mesh screen)
- ❖ ii. Bolt and nut
- ❖ iii. Aluminum
- ❖ iv. Wheel (roller)
- ❖ v. Mild steel
- ❖ Dynamo grater

## **SIEVE**

A sieve, fine mesh strainer, or sift is a device that uses a screen such as woven mesh, net, or perforated sheet material to separate desired materials from undesired material or to characterise the particle size distribution of a sample. A sifter is used in cooking to separate and break up clumps in dry ingredients like flour. A strainer is a type of sieve that is used to filter suspended particulates from a liquid.

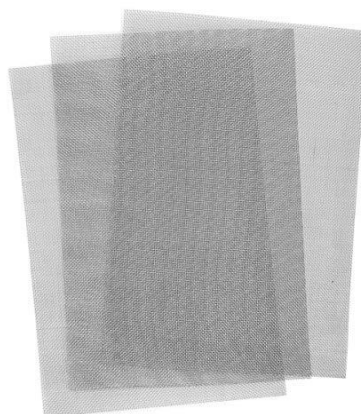


Figure 3.3.2

## **ALUMINUM**

Aluminum is the most common nonferrous metal and the most plentiful metallic element in the Earth's crust. Aluminum is never found in its metallic form in nature due to its chemical activity, but its compounds can be found in varying degrees in practically all minerals and animals.

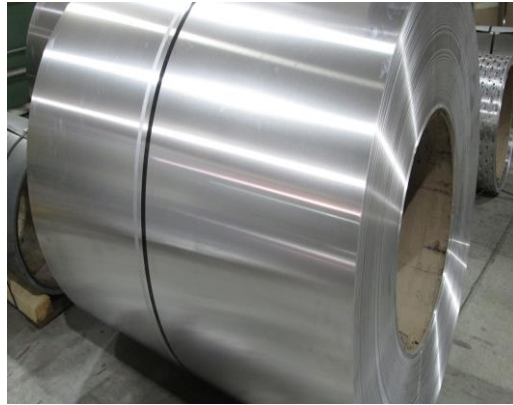


Figure 3.3.3

## **WHEEL**

A wheel is a mechanical device that is shaped like a disc or a circle. Its primary function is to allow objects to roll, i.e. the wheel rotates and the object on the wheels travels more readily.



Figure 3.3.4

## MILD STEEL

Mild steel is a type of carbon steel with a low amount of carbon - It's sometimes referred to as "low carbon steel." The quantity of carbon found in mild steel is typically 0.05 percent to 0.25 percent by weight, whereas heavier carbon steels are typically stated as having a carbon content of 0.30 percent to 2.0 percent, depending on the source. The steel would be classified as cast iron if any more carbon was added.



Figure 3.3.5

## DYNAMO GRATER

A dynamo is an electrical generator that uses a commutator to generate direct current. The first electrical generators capable of supplying power to industry were dynamos.



Figure 3.3.6

## BUDGET

<b>Bil.</b>	<b>Material</b>	<b>Quantity</b>	<b>Price per l (RM)</b>	<b>Price (RM)</b>
1.	Aluminum	1	35.00 (500×300) (mm)	35.00
2.	Dinamo grater	1	130.00	130.00
3.	Wheel	4	3.00	12.00
4.	40 Mesh screen	1	50.00 (1m×1m)	50.00
5.	Mild steel (square)	4	36.00 (2.5×2.5×100) (Cm)	144.00
Total				371.00

Figure 3.3.7

## PROJECT SUMMARY

Project planning and phases are made and being implemented during the project production in order to ensure the process go smoothly. It also helped to as a reference to ensure that we achieve the objective on time. Without a proper schedule, the production of the product will be delayed and the efficiency in making the product will dropped because of it. This show that methodology is one of the importance things that need to be done properly because it give a huge impact in this project.

### 3.4 ENHANCE PRODUCT WITH CONCURRENT ENGINEERING DIRECTION

For the product, we have improved it by using a dynamo grater, this is because it can help reduce labor as there is no need to sift the flour manually anymore. in addition, we use it because it is an electrical generator that produces direct current using a commutator. therefore, we use it for programming in our products, using a dynamo grater we are able to control it with the available switches, and are also able to supply enough energy to activate our products.

# CHAPTER 4

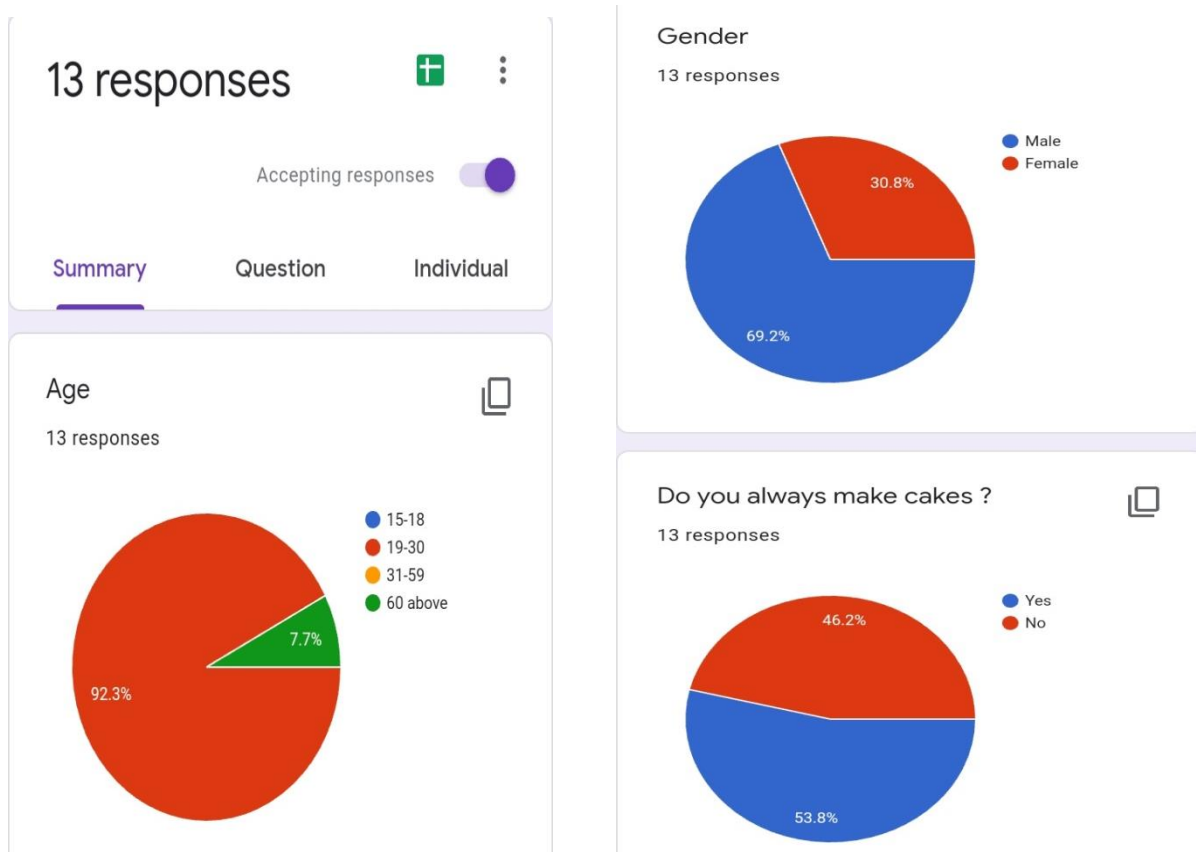
## RESULT AND DISCUSSION

### 4.1 INTRODUCTION

In this chapter, its had present data and analysis derived from the testing of social distancing detector products. This is to ensure that all research objectives and scope are met. To ensure the project's success, every piece of data had been analyzed.

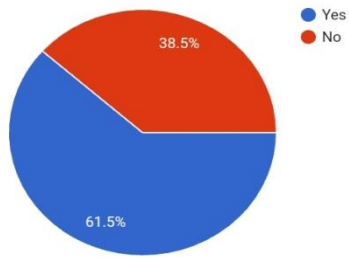
### 4.2 EXECUTION PRELIMINARY PROJECT

#### 4.2.1 QUESTION AND ANSWER



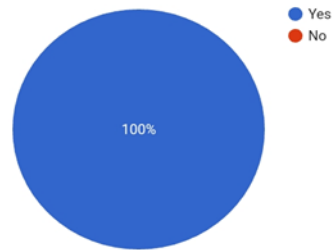
Do you prefer to sift the flour manually?

13 responses



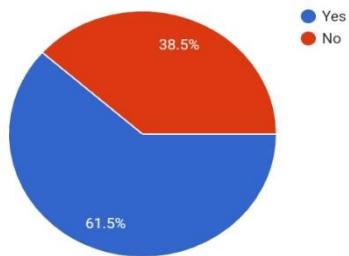
Do you agree that having an automatic Sieve Machines are way more convenient than sift the flour manually?


13 responses



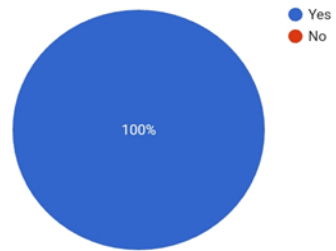
In your opinion, does sift the flour manually takes up time ?

13 responses



If we put it on the market, would you buy this Automatic Sieve Machines? 

13 responses



The result of the information we obtained from this questionnaire form ,we have received a total of 52 responses from individuals of various ages. The result of the information we obtained from this questionnaire is:

**i. Question**

Question 1: age?

Question 2: gender?

Question 3: do you always make a cake?

Question 4: do you prefer to sift the flour manually?

Question 5: in your opinion, does sift the flour manually take up time?

Question 6: do you agree that having an automatic sieve machine are way more convenient than sift the flour manually

Question 7: if we put it on the market, would you buy this automatic sieve machine?

**ii. Answer**

Answer 1: (72.5% 19-30),(20.3% 15-18),( 5.8% 31-59),(1.4% 60 above).

Answer 2: 52.2% female and 47.8% male.

Answer 3: 62.3% yes and 37.7% no.

Answer 4: 65.2% no and 34.8% yes.

Answer 5: 87% yes and 13% no.

Answer 6: 94.2% yes and 5.8% no.

Answer 7: 89.9% yes and 10.1% no.

#### **4.2.2 PRELIMINARY FINDING EXPECTATIONS**

- ❖ The weight of flour that can be sifted by the machine in one time is 5 kg
- ❖ This machine requires 45 minutes to complete one cycle of the sieving process
- ❖ The total weight of this flour sieve machine is estimated at 20kg

#### **4.2.3 CORRELATE PRELIMINARY RESULTS FINDING WITH THEORY AND LITERATURE REVIEW**

based on the information obtained from the initial findings, it is very appropriate and relevant to the theory and literature review of our project. As a result of the initial findings, we found that the weight of flour that can be sifted by the machine in one time is 5 kg where this result is suitable for use by bakeries and caterers because the flour can be sifted a lot for the process of making meals in the bakery and in time the same can reduce manpower. this machine requires 45 minutes to complete one recycle of the sieving process where this machine can save time and is suitable for use in the bakery because in the bakery the use of flour is very important and needs to be done quickly and it needs to be sifted quickly to enable the food manufacturing process to be done quickly.

#### **PROJECT INSTALLATION**



Figure 4:2:3:1

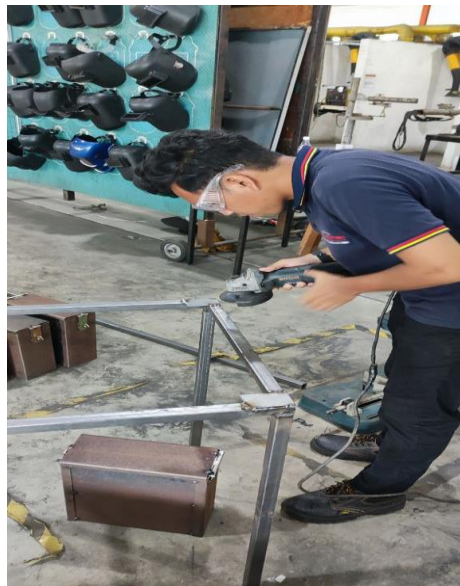


Figure 4:2:3:2





Figure 4:2:3:3

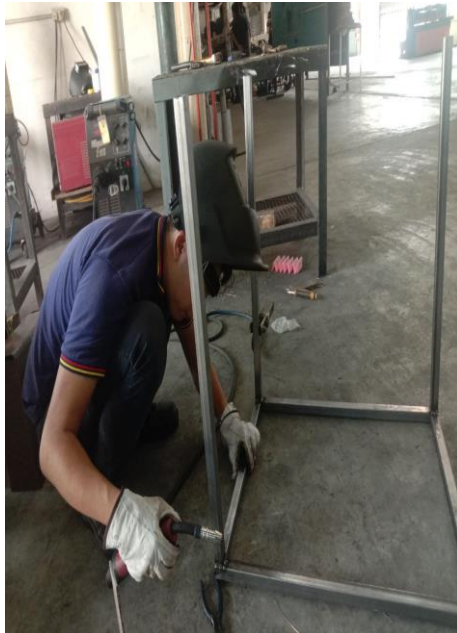


Figure 4:2:3:4

#### 4.2.4 PROJECT VIEW



Figure 4:2:4:1



Figure 4:2:4:2



Figure 4:2:4:3



Figure 4:2:4:4

#### **4.2.5 PROJECT MATERIAL**

The material that we used to make this project is :

- i) Aluminum
- ii) Mesh screen / sieve
- iii) Mild steel
- iv) dynamo grater
- v) wheel

#### **4.2.6 PROJECT TESTING**

The project was successful and working well as its sieve a large amount of flour automatically in a short time without used many energy or workers. Even sometimes our products emit a noisy noise but so far it was good enough to prove that we achived our objective. We have cut the mild steel according to the measurements of our project and we have welded the mild steel to make the framework of our project. We installed a dynamo in the back to move the project and we have installed the screws in the base part of the dynamo and fitted in the mild steel part . We have installed screws on the base part of the dynamo and fitted on the iron part to prevent the dynamo from falling. We have installed an iron to connect the dynamo with the flour sieve so that it can move forward and backward. The automatic sieve machine will move if the machine plug is connected to an energy source. As the results , the machine can sieve a large amount of flour in a short time and and perform well.

#### **4.3 DISCUSSION**

As had been discussed, we had known that this project was a good achivement to ourself and others people. We can see that this project brought us a lot of good advantages plus achive the objective. For us, this project was a great head start to gain more experience and knowledge about engineering to help more people in the future as a mechanical engineering's students. We use the welding to make a body of the project., and the material that we used is mild steel to make a project body. Mild steel is recyclable, making it the most environmentally friendly steel.

#### **4.4 SUMMARY**

This chapter had explained that the result of the project have a great success rate as it develop well in the community. So much that we had learned from the result and gradually practice it . Even with so many hurdle we crossed path, we had continuously getting better to overcome the problem so as result it happen with flying colours. As the method we used, we had could do many of the mechanical practices that been learn especially for the welding. As a result, this new prosthetic will benefit customers.

## **CHAPTER 5**

### **DISCUSSION, CONCLUSION AND UPGRADED**

#### **5.1 INTRODUCTION**

through the researched done to produced this project, this machine helps the problem that faced by the baker and helped to improved their productivity in baking. More, this innovation also helps the demanded for the machine and improved way to sieve from the existing sieving machine. A lot of the sieve product that were in the market usually costly and high in maintenance. A lot of simulation and test had been done to ensured that the product able to worked and succeed to done the job. Plus, we also put some effort in design and material selection so that this machine able to reduce the accident or injury while operate the machine. This shows that the machine would had a complete design and safety feature. Lastly this project would able to sieve flour or any problem that include sieving

#### **5.2 DISCUSSION**

After finalizing the design, search material that suitable for the product specification we all know that this machine will be the great addition especially to the baker to help in bakery production line and manufacturing. Our target in this project is to make a fully electric-powered flour sifter that is easy to use and save some processing time that is needed for a small bakery or household. More, the project design was successfully proposed and fabricated according to designed material and fabrication method.

### 5.3 CONCLUSION

In conclusion, through the researched done to produced this project, we could overcome the problem faced by baker an improved existing sieving machine to made easy to used although the main purpose of this machine to sieve flour, this project would also ensured that this machine was able to reduce the accident or injury to the user thus the machine had been accompanied by a complete design and safety features. more the improvement that stated conclude that this machine also able to improved productivity hance the sales for the baker. Lastly, lastly, this project would settled any problem that includes sieving

### 5.4 UPGRADE PLAN

#### BODY STRUCTURE

- There were few materials could been used to design the body of the machine. Selection od this material for this machine was really importance for the machine. A stainless steel had been the perfect instate of aluminum and food grade steel. This also would helped to protected the quality of the flour and helped the machine last longer

#### DYNAMO GRATER

- An electric motor was an electric machine that converted electric energy to mechanical energy. Electric motors could been power by direct current (dc) source. Such as power grid, inverters or electric generator. A resistance could been added to the motor so that the speed of the machine could been adjusted according to the volume of the flour and to controlled the fines of the flour

#### MESH SCREEN

- A mesh was a barrier made of connected straded of metal or other flexible or ductile material. A mesh was similar to the web or a net in that it had many attached or woven strands. For the upgraded we could had variety of mesh to controlled the size of micro partical of the flour to sieve and could helped to produced more fine flour.

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- [5] [https://www.flexicon.com/Bulk-Handling-Equipment-and-Systems/Sanitary-Equipment/landing\\_enGB.html?srcHQ=FCA&gclid=Cj0KCQiA88X\\_BRDUARIsACVMYD8c1yh4OX0puVWazrJ6t95SeXQh6wTnfM\\_qwhVnp09JdoCyswGInIaAnEwEALw\\_wcB](https://www.flexicon.com/Bulk-Handling-Equipment-and-Systems/Sanitary-Equipment/landing_enGB.html?srcHQ=FCA&gclid=Cj0KCQiA88X_BRDUARIsACVMYD8c1yh4OX0puVWazrJ6t95SeXQh6wTnfM_qwhVnp09JdoCyswGInIaAnEwEALw_wcB)

## **APPENDICES**

**ATTACHMENT A**

**Gantt Chart (Project 1)**

**ATTACHMENT B**

**Gantt Chart (Project 2)**

**ATTACHMENT C**

**Project Budget**

**ATTACHMENT D**

**Project Dimension**



## ATTACHMENT A

### Gantt Chart (Project 1)

WEEK	STATUS	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14
<b>PROJECT ACTIVITY</b>															
BRIEFING FOR FINAL YEAR	P														
	I														
DISCUSSING INITIAL PROPOSAL	P														
	I														
LITERATURE REVIEW	P														
	I														
STUDY OF OPERATION	P														
	I														
SURVEY THE COMPONENTS	P														
	I														
PREPARE FOR PROPOSAL REPORT AND PROPOSAL PRESENTATION	P														
	I														
PRESENTATION	P														
	I														
SUBMIT FINAL PROPOSAL REPORT AND PRESENTATION	P														
	I														
PREPARE THE PROJECT	P														
	I														

**ATTACHMENT B**

**Gantt Chart (Project 2)**

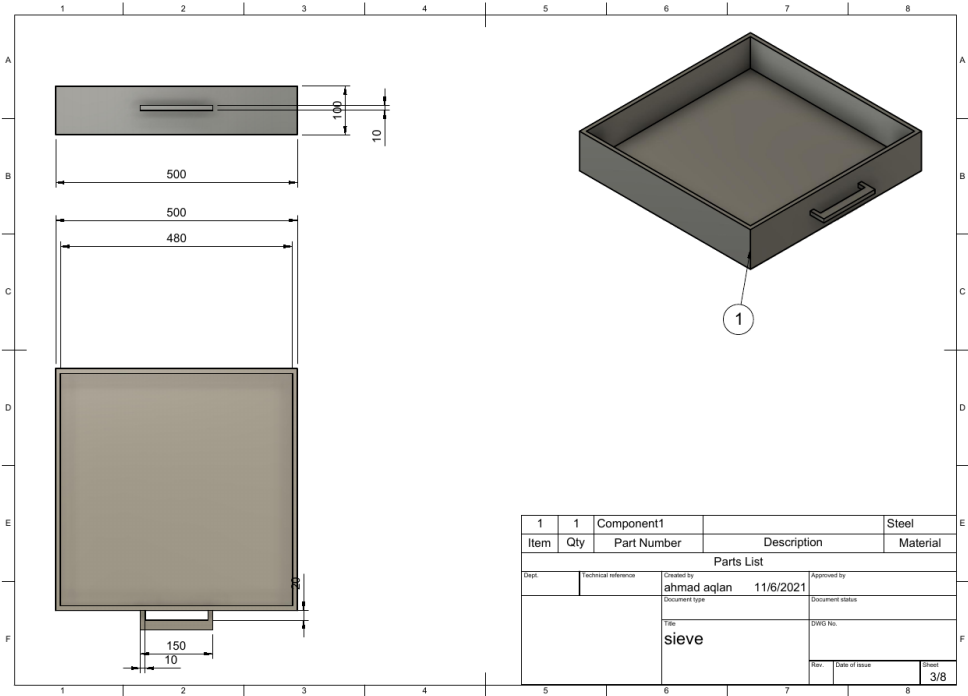
Week / Activities	W 1	W 2	W 3	W 4	W 5	W 6	W 7	W 8	W 9	W 10	W 11	W 12	W 13	W 14
Course registration	█													
Write the Final Report	█	█	█	█	█	█	█	█	█	█	█	█	█	
MyIPO Registration		█												
Assemble project materials and components			█	█	█	█								
Product testing							█							
Finish the entire part of the project								█						
Data Analysis									█					
Plagiarism Review (Turnitin)										█				
Progress Presentation Project Progress Presentation										█				
Presentation Preparation											█			
Abstract review by supervisor											█			
Technical Paper Review by supervisor											█			
Correction/Refinement of Final Report												█		
Abstract Review by Interpreter												█		
Submission of Final Report													█	
RICE PSA														█
Logbook Submission														█

**ATTACHMENT C****Project Budget**

<b>NO</b>	<b>MATERIAL</b>	<b>QUANTITY</b>	<b>PRICE PER UNIT</b>	<b>PRICE</b>
<b>1.</b>	ALUMINIUM	1	RM 35.00	RM 135.00
<b>2.</b>	DYNAMO GRATER	1	RM 130.00	RM 130.00
<b>3.</b>	WHEEL	4	RM 3.00	RM 12.00
<b>4.</b>	MESH SCREEN	1	RM 50.00	RM 50.00
<b>5.</b>	MILD STEEL	4	RM 36.00	RM 144.00
	<b>TOTAL</b>			RM 371.00

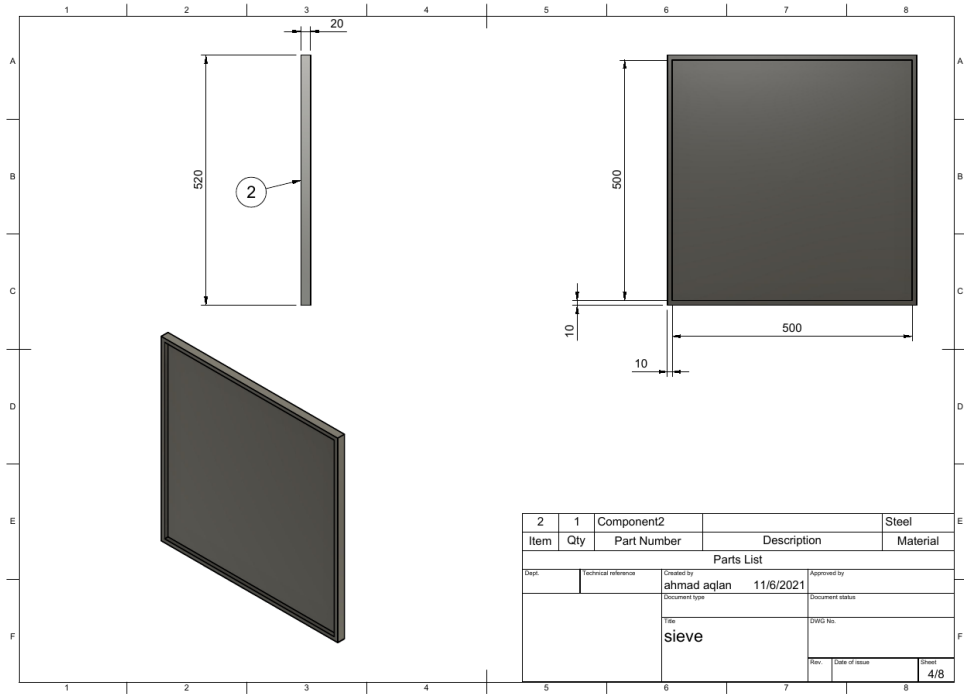
Product Dimension

SIEVER CONTAINER

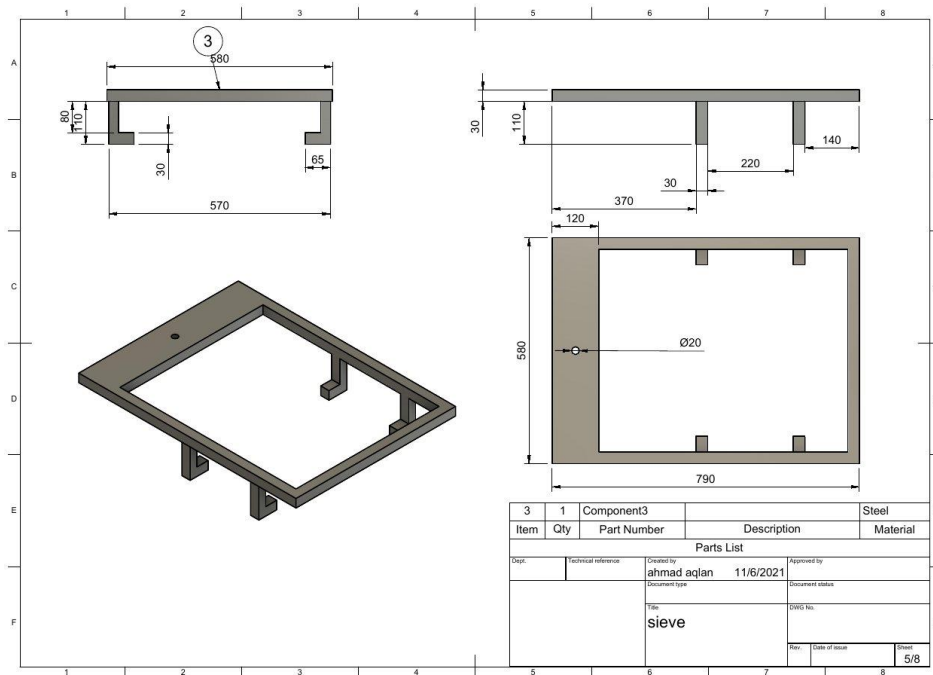


Item	Qty	Component1	Description	Material
1	1	Component1		Steel
Parts List				
Dept:	Technical reference	Created by	ahmad aqlan 11/6/2021	Approved by
		Document type		Document status
		File	sieve	DWG No.
		Rev.	Date of issue	Sheet
				3/8

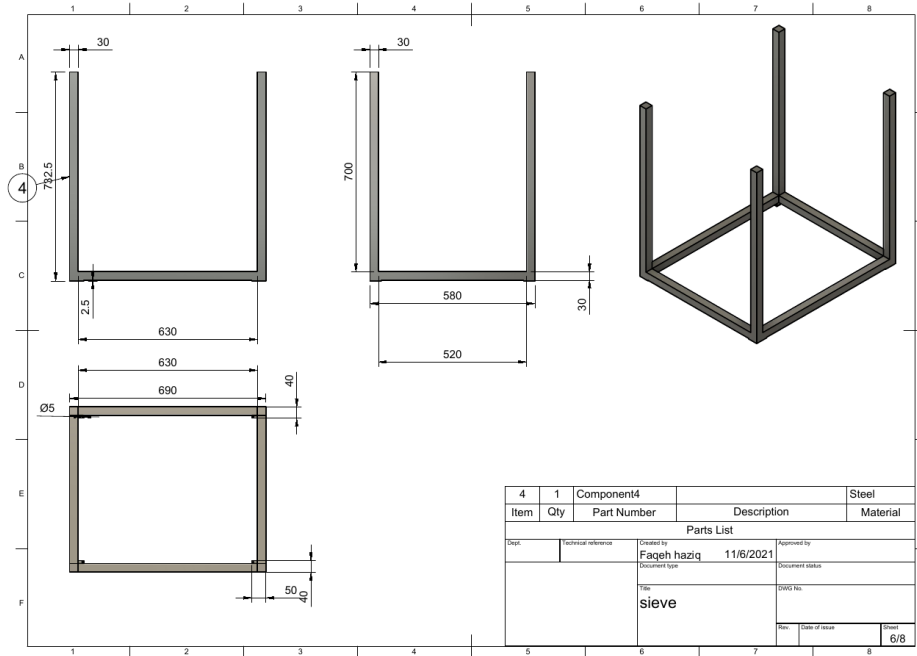
# TOP COVER



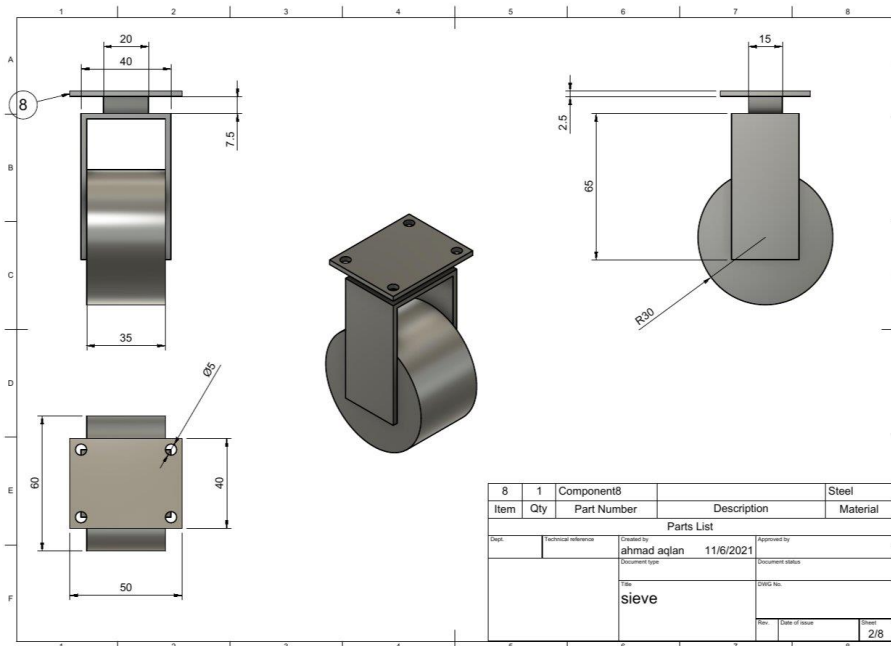
# UPPER BODY



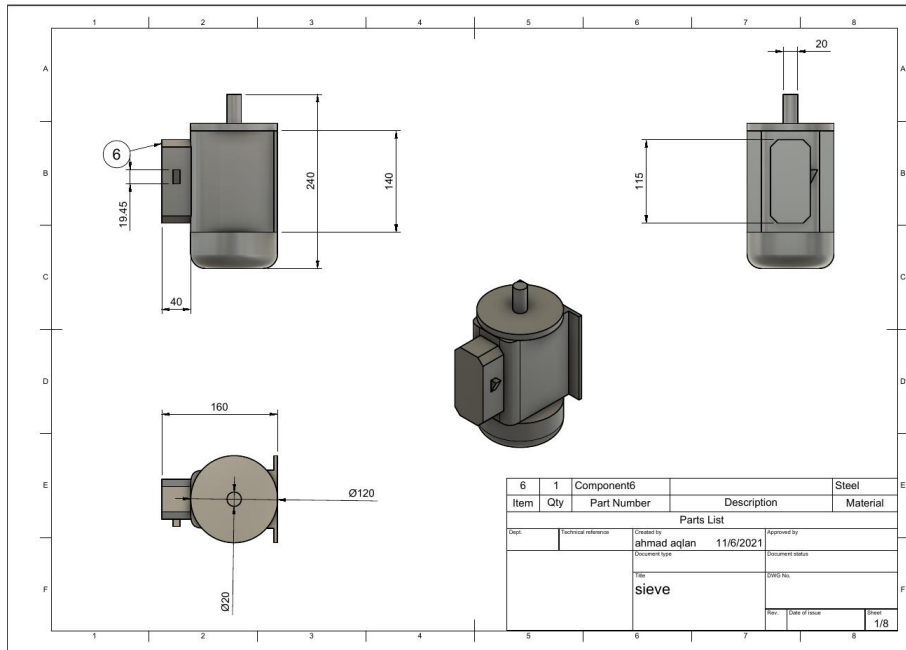
# LOWER BODY



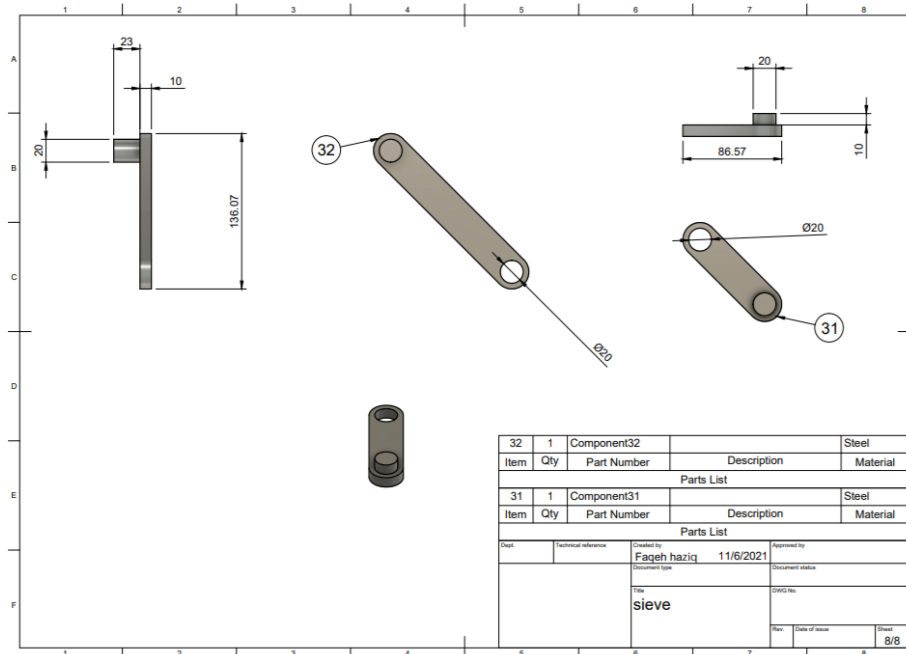
# WHEEL



# DYNAMO GRATER



# CONNECTOR



# FLOUR CONDUCTOR

