POLITEKNIK
MALAYSIA
SULTAN SALAHUDDIN ABDUL AZIZ SHAH

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RECYCLE BIN MACHINE

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JUNE 2019

DECLARATION OF OWNERSHIP AND COPYRIGHT

SESSION: JUNE 2019

This Final Year project is a partial fulfilment of the requirements for Diploma Mechanical Engineering (packaging) in Politeknik Sultan Salahuddin Abdul Aziz Shah, Shah Alam.

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ACKNOWLEDGEMENT

In the name of Allah, the Most Merciful and the Most Gracious. Alhamdulillah, all praises to the almighty Allah S.W.T for His blessings which has giving us patience, strength and ability to complete this thesis. First and foremost, our highly appreciation and respect to our supervisor Mr. Bryan Hee Tze Keon for his exceptional guidance, continuous support and encouragement throughout this research. Without their assistance and dedicated involvement in every step throughout the process, this thesis would have never been accomplished. Thank you for the valuable recommendations, ideas and advice which contributed immensely to the successful completion of this research work.

We would also like to thank all of team members who always supportive and guide each other throughout completing this project. A special thanks to our family especially to our parents and siblings, for all of the sacrifices that you've made on our behalf. Your prayer for us was what sustained us thus far.

At the end, deeply gratitude expressed to every person involved to the successfully of this project whose not been mentioned here, may Allah blessed us all.

ABSTRACT

The main purpose of our project is to encourage people to recycle. We innovate and develop new ideas on existing recycling bins. We add interesting manual mechanisms of crushers that can attract more people to use them. Affordable prices may provide benefits to our projects. Estimates cost around RM 450. The project we produce is also intended to save space when it can be thrown at the point of collection. We estimate the mass that our project can fit is around 15kg. The other benefits we get from this project are profits. We collect drink cans and drink boxes from this machine and we sell it to generate revenue. We think to put this machine in mosques, schools, futsal courts, shopping malls, in addition to bending machines and other public places. We believe this design can help the recessionary recession problem in Malaysia and bring the habit of Malaysians to care more about recycling.

ABSTRAK

Tujuan utama projek kami adalah untuk menggalakkan orang ramai mengitar semula. Kami melakukan inovasi dan membangunkan idea baru terhadap tong kitar semula yang sedia ada. Kami menambah gabungan mekanisme manual yang menarik untuk penghancur yang boleh menarik lebih orang untuk menggunakannya. Harga yang berpatutan mungkin memberikan kelebihan kepada projek kami. Anggaran kos sekitar RM 450. Projek yang kami hasilkan ini juga bertujuan untuk menjimatkan ruang apabila boleh dilemparkan ke titik pengumpulan. Kami menganggarkan jisim bahawa projek kami boleh muat ialah sekitar 15kg. Manfaat lain yang kita dapat dari projek ini ialah keuntungan. Kami mengumpul tin minuman dan kotak minuman dari mesin ini dan kami menjualnya untuk menjana pendapatan. Kami berpendapat untuk meletakkan mesin ini di masjid, sekolah, gelanggang futsal, pusat membeli-belah, di samping mesin lenturan dan lain-lain tempat awam. Kami percaya rekaan ini dapat membantu masalah kitar semula yang semakin merosot di negara Malaysia dan membawa kebiasaan di kalangan rakyat Malaysia untuk lebih mengambil berat tentang kitar semula.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Recycling is the process of converting waste materials into new materials and objects. It is an alternative to "conventional" waste disposal that can save material and help lower greenhouse gas emissions. In addition, it is a source of environmental, financial and social benefits. Material such as cans, glass, iron, plastic and paper are collected, isolated and transmitted to processing centers for exchange of new products or materials.

During this time, environmental issues global and universal issues that need to be taken seriously especially in the use of recycling bins. Generally, communities are aware of environmental issues but the level of involvement and environmental care practices is very low.

The study aims to see the involvement in recycling of beverage cans that are often thrown into the trash can without separating them into the recycling bins. However, netizens know that the cans should recyclable. This is because peoples are less interested in the collection of beverage cans as if they were the same as ordinary garbage bins.

Thus, we are introducing a new idea, where the drink cans and drink boxes are collected with a new technology that attracts the community from among children, adolescents and adults. The research shows that there are differences between the usual recycling bins and we innovate a new product of the recycle bin. In addition, this drink cans and drink boxes from recycle bin also contributes to the financial resources of an institution because cans that have been heavily harvested can be sold to steel shop.

Finally, this research make an effort to increase awareness so that society engage and practice the use of recycling in local areas to preserve the environment than it no throwing the drink cans and drink boxes into the ordinary trash bin and will be disposed.

1.2 Background Research

Malaysia currently produces more than 23,000 tonnes of solid waste per day, with less than five per cent of the waste being recycled. In Selangor alone, by 2017 the amount of solid waste could rise to 6,000 tonnes. More than 19 per cent of waste end up in our drains, which then causes flash floods and other health problems. Based on Lo Khere Chiang's speech, the chairman of Padawan Municipal Council (MPP), said the council realised the importance of waste management issues and they were major areas of discussion during their meetings. He added that the increases of population and economic growth in the city the amount of waste has a rise.

In recent years recycling has become more crucial; waste generation has soared and resources are becoming limited, making recycling not only sensible practice but essential. Recycling is processing used materials into new products to prevent waste of potentially useful materials, reduce the consumption of fresh raw materials, reduce energy usage, reduce air pollution and water pollution (Recycling, October 07, 2012). Some materials that can be recycled are papers, glasses, plastics, metals, beverages carton.

Recycling can save energy and the pollution can be reduce. This would help slow down global climate change. Statistics obtained by the NST also revealed that last year alone, a total of 957,334 tonnes were collected. In 2010, the figure recorded was over 1.4 million tonnes (NST Online, June 11,2012). The garbage crisis is more than just an environmental issue it threatens the state's economy by undermining its competitive edge, hindering tourism and discouraging investments. Therefore the study was undertaken to solve the issue.

1.3 Problem Statements

This problem statement is about the garbage crisis. One of the most pressing environmental issues facing contemporary society is the issue of garbage. Currently, waste disposal control issues are indeed a major issue for local authorities who have to spend a lot of money on the collection and disposal of waste generated by the community. The stubbornness of some Malaysian society by mixing all types of garbage in a barrel without alienating it has been tough for the local authorities to manage this solid waste. They found that environmental awareness among Malaysian communities was at a high level but the willingness of the community to get involved in overcoming the environmental problem was too much.

Furthermore, the rate of aluminium cans and boxes in society has been increasing year by year due to the public's awareness of the less progressive recycling and segregation of the waste. The discarded aluminium cans can be reused to new products for example in the metal casting process by melting aluminium and producing a product. While for boxes, we can repackaging to new products.

Additionally, the former trash can be used by the community is not very interesting, causing a lack of interest in recycling. With our product, "Recycle Bin Machine" will attract the public to isolate aluminium cans well. Additionally, this product provides a lot of space for drink boxes too because of the trash bins that previously caused a slight disposal space. To simplify the problem statement, we've listed out the possibilities of problem that cause the occurrence:

i. Can cause injuries due to sharp edge.
ii. The common cycle recycle bin do not attract the people to involve in recycle.
iii. Bauxite pollution when the cans throw anywhere and expose to sunlight.
iv. Not enough space when the drink cans and drink boxes achieve a limitation in common recycle bin.
v. Unclean environment caused by irresponsible society.

1.4 Objectives

We have identified several key objectives of this product. Among them:

i. Develop community interest in the recycling.

ii. Saves the space of recycle bin by means of cans and boxes to be crumbled first before being sent to a collection centre.

iii. Can generate financial income from the sale of drink cans and drink boxes of collected it.

1.5 Scope

The Malaysian Government has firmly that education on the environment are aim at shaping the knowledge and understanding of the environment, as well as complex interaction of natural and human elements. Firstly we need to design the mechanical part using the Autodesk Inventor software to give a view with more details. To develop our product to be more realistic, we have used welding process and cutting process to complete the project. Besides, the welding skill is needed to fabricate the project. This machine will benefit the environment and society as well as enhance the existing technology. We have identified several limits before this machine is built:

- The space for this machine to store the crushed cans and drink boxes has the maximum limit due to the height of the machine.
- Noise will be generated when the system works.
- The possibility mechanism of crusher will be stuck during people using the machine.

Main areas we have identified to place this machine are:

- School
- University/College
- Mosque
- Recreation park
- Next to the vending machine

1.6 Importance of the Research

We have identified some of the importance of this machine to society and the environment. Among them are:

- Avoid environmental pollution and educate people to isolate aluminium cans and boxes.
- To share knowledge about the flow of manual systems to students and communities.
- To collect aluminium cans and boxes are intended for sale and the money can uses for good purpose.
- Collected cans can be also be used for other uses such as metal casting process which is to melt aluminium cans and be new product.

1.7 Definition of Terms/Operational

A crusher is a device used for crushing aluminium soda, soft drinks and drink boxes for easier storage in recycling bins. Most of the recyclers does not require you to crush cans, if you do recycle a lot, your normal bin fill up quickly and don't have enough space to put more into it. The combination the manual mechanism of crusher and recycle bin is the new development from out group which has been discussed with our supervisor.

When an object (drink cans and drink boxes) are inserted in the machine, the person should roll the mechanism handle to put the cans and boxes in their land, then the person should slide down to crusher or casing before it compress. The crushed cans and boxes will fall into the storage space of recycle bin. Once the cans and boxes are broken, these stuff will resize to smaller and fall into recycle storage space. The space can be saved even though the quantity of the cans and boxes are much because the size has change to smaller.

1.8 Chapter Review

From this chapter we have learned and know about the project backgrounds and the purpose to do it. This project use the concept of manual system to crush the drink cans and drink boxes. Thus, this project is different between the other current recycle bins because we add new system for the recycle bin.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

In this chapter, explanation about theory related to the recycle can machine and the equipment required in order for the reader to understand the rest of the contents. Besides that give a summary of various methods that has been tried to solve the problem or different ways of implementing the system and compare their achievements or problems. The information or literature reviews obtained are essentially valuable to assist in the construction and specification of this project. With this grounds established, the project can proceed with guidance and assertiveness in achieving the target mark.

2.2 Concept and Theory

A recycle can machine is a container used to hold recyclables before they are taken to recycling centres. As we know that recycling bins are exist in various sizes to use inside and outside homes, offices and large public facilities. Separate containers are often provided for paper, tin or aluminum cans and glass or plastic bottles or may be commingled.

Many recycling bins are designed to be easily recognizable and are marked with slogans to promote recycling on a blue or green background along with the universal recycling symbol. Others are intentionally unobtrusive. Bins are sometimes in different colours so that user may differentiate among the types of materials to be placed in them. While there is no universal standard, the colour blue is commonly used

to indicate a bin is for recycling in public settings. Recycling bins or cans or carts are a common element of municipal curb side collection programs which frequently distribute the bins to encourage participation.

Recycling is the process of converting waste materials into new materials and objects. It is an alternative to "conventional" waste disposal that can save material and help lower greenhouse gas emissions compared to plastic production. Recycling can prevent the waste of potentially useful materials and reduce the consumption of fresh raw materials, thereby reducing energy usage, air pollution (from incineration) and water pollution (from land filling).

Recycling is a key component of modern waste reduction and is the third component of the "Reduce, Reuse and Recycle" waste hierarchy. There are some ISO standards related to recycling such as ISO 15270:2008 for plastics waste and ISO 14001:2004 for environmental management control of recycling practice.

Recyclable materials include lots of kind of glass, paper and cardboard, metal, plastic, tires, textiles and electronics. The composting or other reuse of biodegradable waste such as food or garden waste is also considered recycling. Materials to be recycled are either bring to a collection centre or picked up from the curb side then sorted, cleaned and reprocessed into new materials destined for manufacturing.

In the strictest sense, recycling of a material would produce a fresh supply of the same material for example, used office paper would be converted into new office paper or used polystyrene foam into new polystyrene. However, this is often difficult or too expensive (compared with producing the same products from raw materials or other sources), so "recycling" of many products or materials involves their reuse in producing different materials (for examples, paperboard) instead. Another form recycling is the salvage of certain materials from complex products, either due to their intrinsic value (such as lead from car batteries or gold from circuit boards) or due to their hazardous nature (example; removal and reuse of mercury from thermometers and thermostats).

WHY DO WE RECYCLE BOXES?

Recycle boxes is a high quality that can be used as packaging materials and boxes. Cardboard can be recycled many times without losing strength. Corrugated cardboard containers that get used for shipping have a high percentage of post

consumer recycle content. When it comes to recycling, not all boxes are same. This is not only due to the quality of the paper but also any materials added to optimize the box for consumer use.

Take the example of gable-top cartons and aseptic containers, which you may know as milk or juice cartons and juice boxes respectively. At first glance, these products seem destined for the paperboard recycling bin but think about what would happen if we poured orange juice in a cereal boxes. These are not normal paperboard.

In today's economy, businesses and institutions recycle items like cardboard because it saves them money on waste disposal costs. Recycling is also good for the planet and your local community because it helps conserve valuable resources, reduces pollution from production of new materials and creates jobs.

Environmental saving

Recycled boxes uses about 5% of the energy that would be needed to create a comparable amount from raw materials. The benefits with respect to emission of carbon dioxide depends on the type of energy used. Electrolysis can be done using electricity from non-fossil-fuel sources such as nuclear, geothermal, hydroelectric or solar. Cardboard production is attracted to sources of cheap electricity. Canada, Brazil, Norway and Venezuela have 61% to 99% hydroelectric power and are major paperboard producers. The use of recycled boxes also decrease the need for mining bauxite. The vast amount of boxes used means the even small percentage losses are large expenses, so the flow of material is well monitored and accounted for financial reasons. Efficient production and recycling benefits the environment as well.

WHY DO WE RECYCLE ALUMINIUMS?

The recycling of aluminium generally produces significant cost savings over the production of new aluminium, even when the cost collection, separation and recycling are taken into account. Over the long term, even larger national savings are made when the reduction in the capital costs associated with landfills, mines and international shipping of raw aluminium are considered:

Energy saving

Recycling aluminium uses about 5% of the energy required to create aluminium from bauxite and the amount of energy required to convert aluminium oxide into aluminium can be vividly seen when the process is reversed during the combustion of thermite or ammonium perchlorate composite propellant.
Aluminium die extrusion is a specific way of getting reusable material from aluminium scraps but does not require a large energy output of a melting process. In 2003, half of the products manufactured with aluminium were sourced from recycled aluminium materials.

Environmental savings

Recycled aluminium uses about 5% of the energy that would be needed to create a comparable amount from raw materials. The benefits with respect to emission of carbon dioxide depends on the type of energy used. Electrolysis can be done using electricity from non-fossil-fuel sources such as nuclear, geothermal, hydroelectric or solar. Aluminium production is attracted to sources of cheap electricity. Canada, Brazil, Norway and Venezuela have 61% to 99% hydroelectric power and are major aluminium producers. The use of recycled aluminium also decrease the need for mining bauxite.

The vast amount of aluminium used means the even small percentage losses are large expenses, so the flow of material is well monitored and accounted for financial reasons. Efficient production and recycling benefits the environment as well.

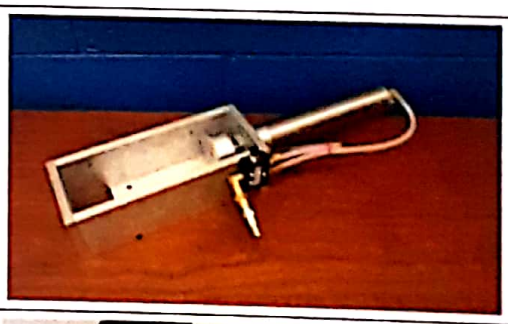
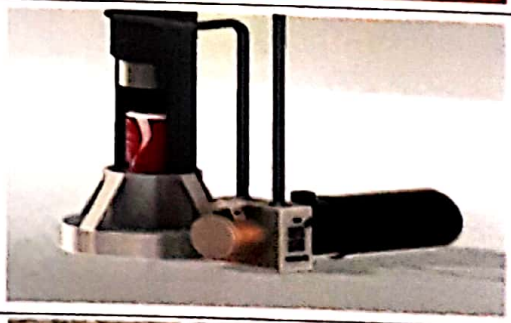
2.3 Previous Researches

Before we develop this project, we know that recycling bins are also hard to find in public places and have in certain place. Therefore, people will throw cans into ordinary bins. This cans actually can be recycled and generate profit from it. We developed a project which is combine the mechanism of can crusher and save storage of cans. For the collectors, they need to crush the cans by using their feet before collect it which

can lead to injuries due to the sharp edges. Furthermore, we develop new things that combine mechanism of can crusher and recycle bin. Our project will make recycling process more easily and safer as it includes the process of crushing the can and also save more space. We also believe our product will bring benefit to the environment and encourage society to involve in recycle.

Various type of Can Crushers available in the international market:

Table 2.1: Type of Can Crushers

Type of Can Crusher	Image
Hand operated can crusher	
Pneumatic can crusher	
Hydraulic can crusher	
Electric can crusher	

2.4 Chapter Review

In conclusion, recycling protect the environment. It means that fewer resources are needed to create products, which means less pollution and less decimation of our natural world. After all, there is now scientific evidence showing that global warning may be irreversible within 15 years, which means the world will start warming up non-stop until all life on earth is dead. Here we evaluate the environmental benefits of recycling and how this upgraded recycle bin may help slow the global warming. Slowing global warming would be a good thing, as it will soon destroy the earth.

CHAPTER 3

METHODOLOGY

3.1 Introduction

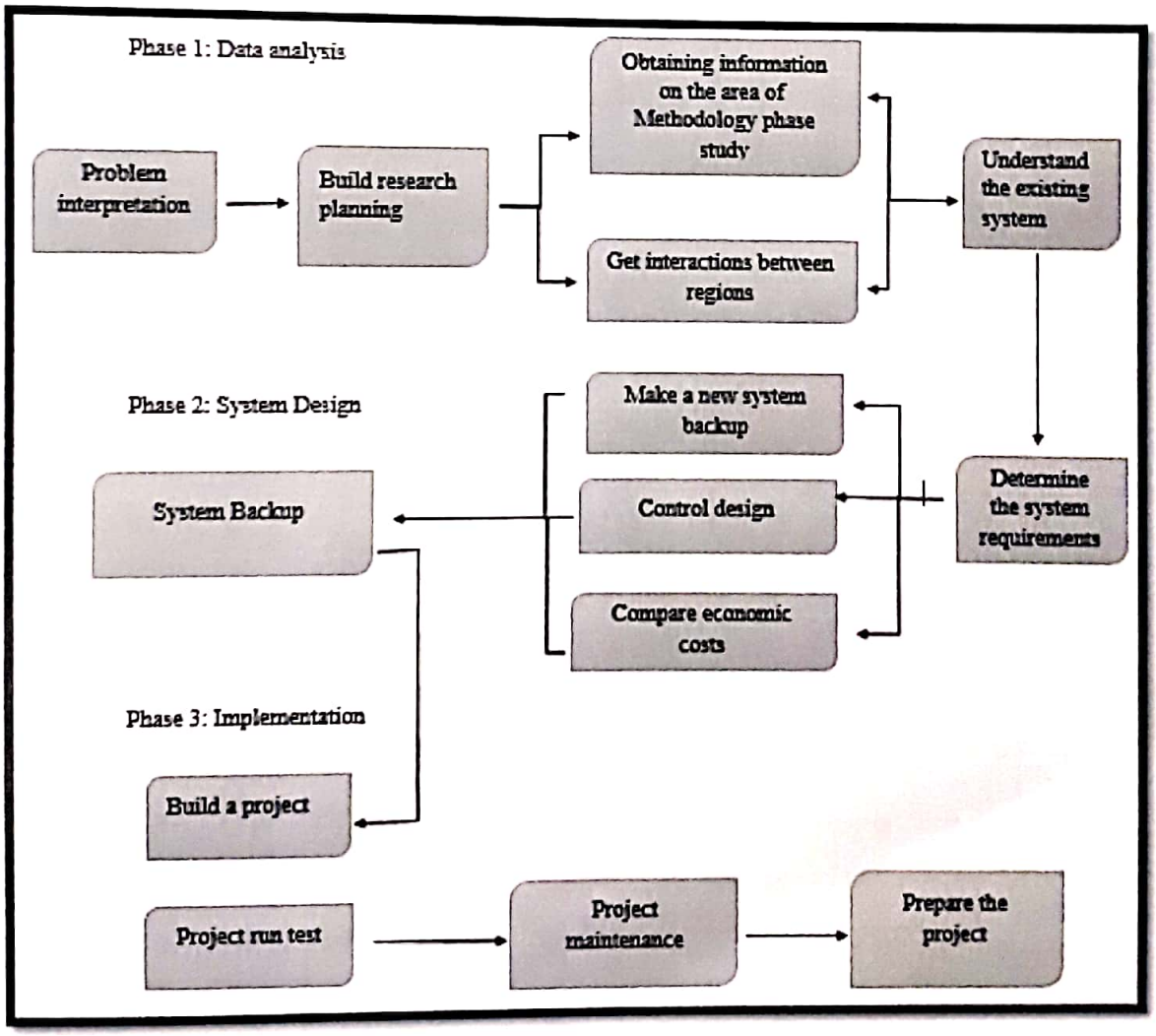
In fabricating the recycle bin cans and boxes crusher bin apparatus, some step must be followed. In this part, all student should understand what material is chosen and the function of each material that will be used. Methodology is important before make the product completely. In fabrication process, it is include about measuring, transferring, punching, bending, joining, and finishing process. All methods that will be explained in this chapter are important procedures to ensure the project progress is in schedule. Effective method will give clear view on how to do this project. This method is guideline so that the project will complete on time as the planning. The whole process will be explained in this chapter. So it will give general view of what are the steps that should be taken.

3.2 Flow Chart

Flowchart is the best for visualize representation for process and the flow of custom- order process through various department within an organization. We will explain on the flow in this process. Firstly, every week we had a meeting with our supervisor to discuss about what the project that we suggest. Each member of group need to think several ideas to be presented in front of supervisor and discuss more about the project that present. The project surely based on the problem that people facing nowadays. While the project is near to be decide, we need to identify the problem statement that are required and list down the objective. The design should be

sketch to give better view on how the project will be look like. After that we make an analysis and do some research especially about literature review to make a compare with the current product. Then we can decide on what material that we have to use in this project, and knows the price each of it. The materials that chosen must be studied to test the durability in diverse environment, then we all decide to use a material that suitable on the project that we do. When the project is in the making process and it will be testing out to know whether functionally good or not. If not, we have made some modification and fabrication process to ensure the product is functioning properly without any problem.

3.2.1 Phases of Methodology



3.2.2 Project Implementation Procedures

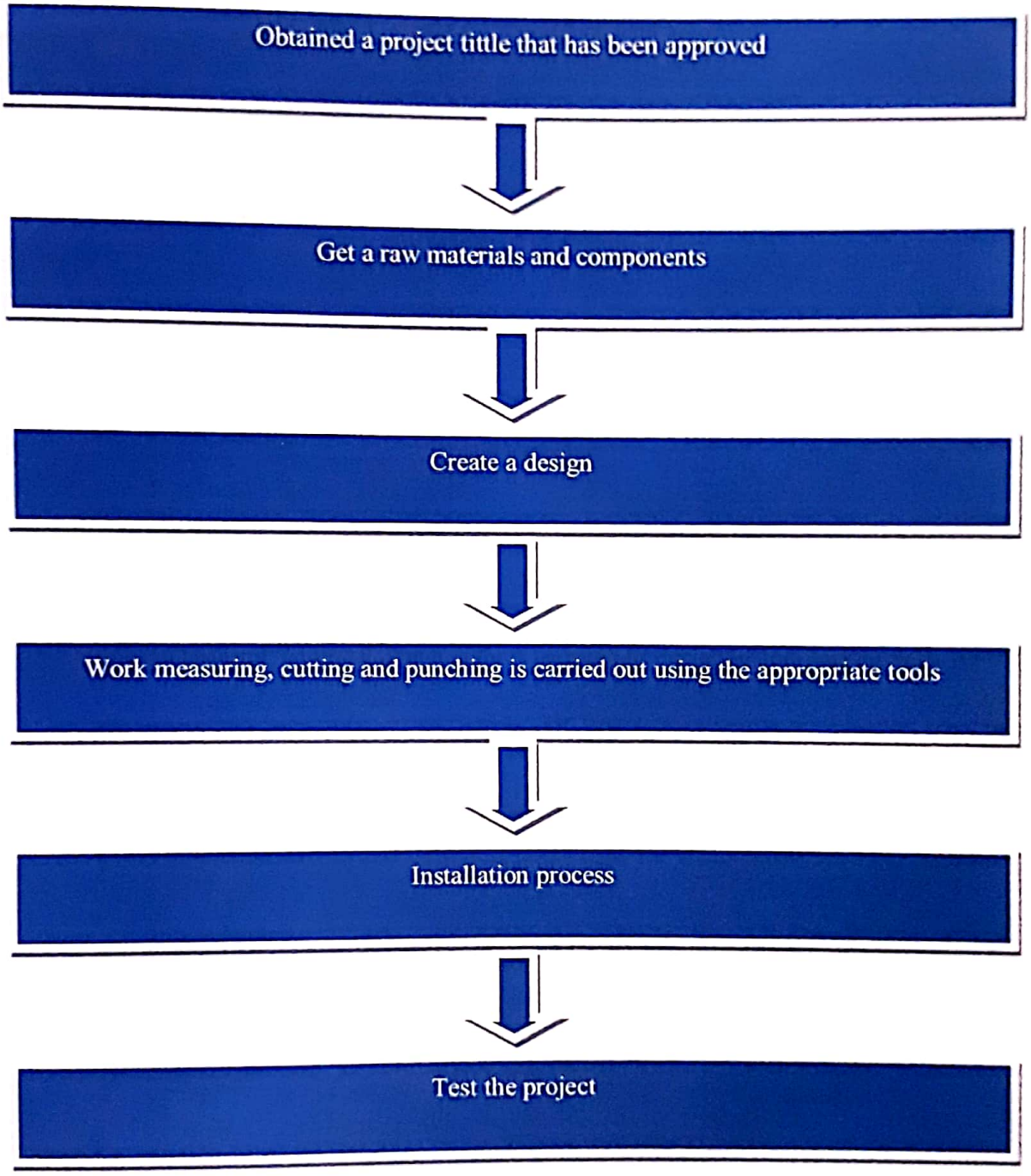


Figure 3.1: Flowchart of Project Implementation Procedures

3.3 Project Design

3.3.1 Design in Project 1 (Auto System)

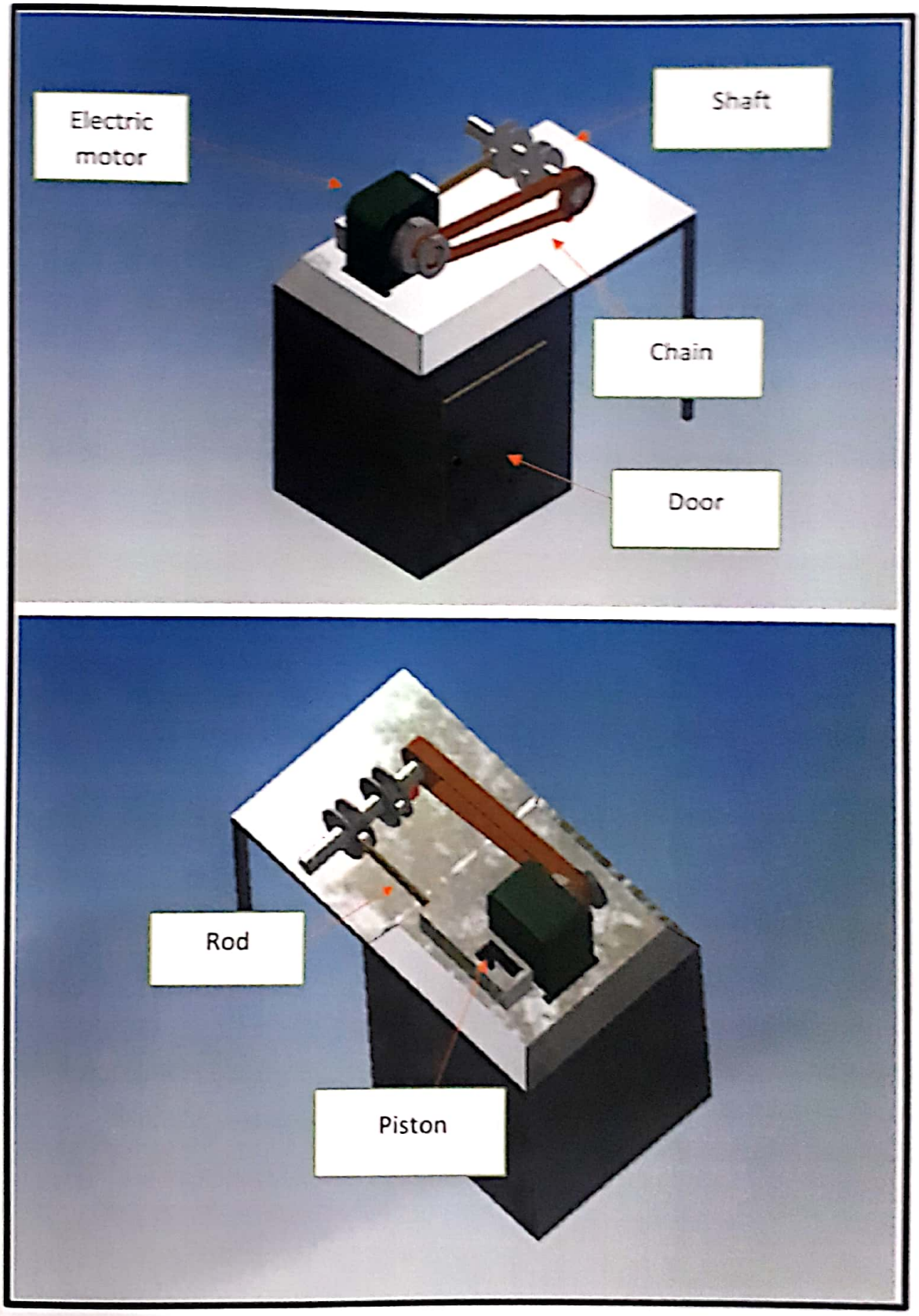


Figure 3.2: Design Project 1

3.3.2 Final Design in Project 2 (Manual System)

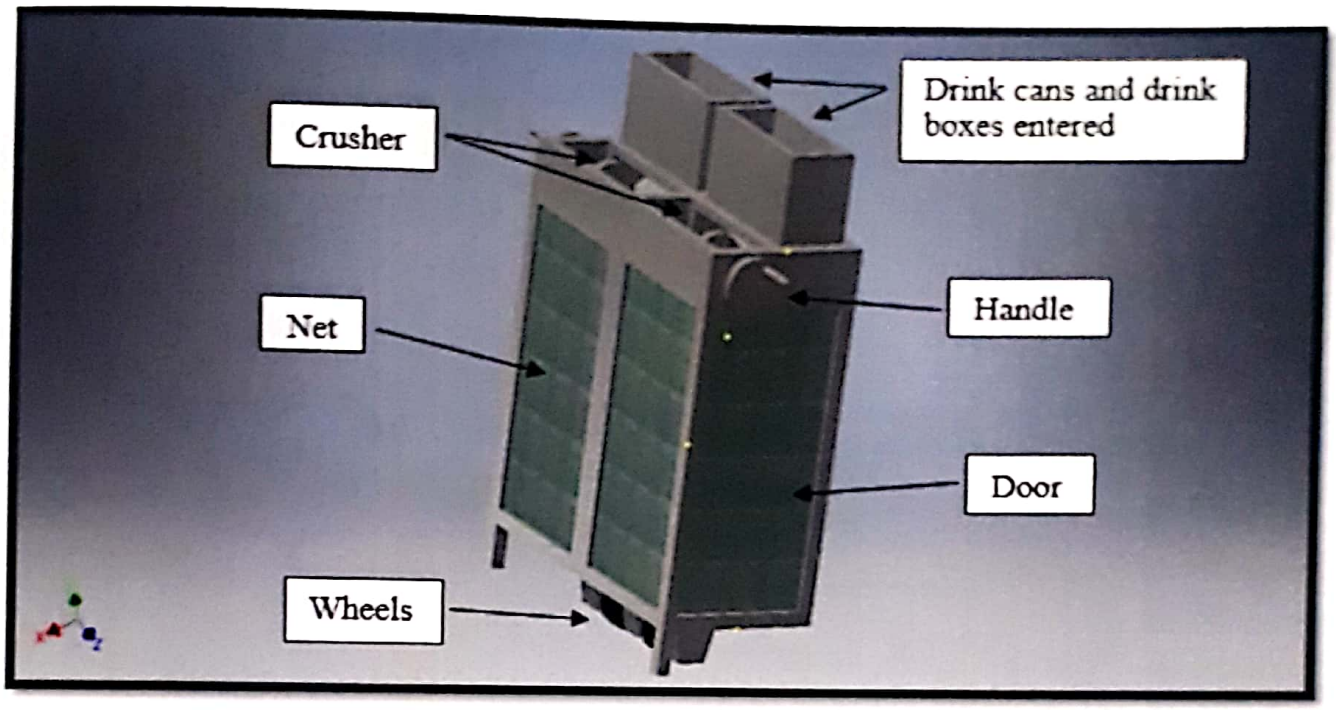


Figure 3.3: Full View Project Design

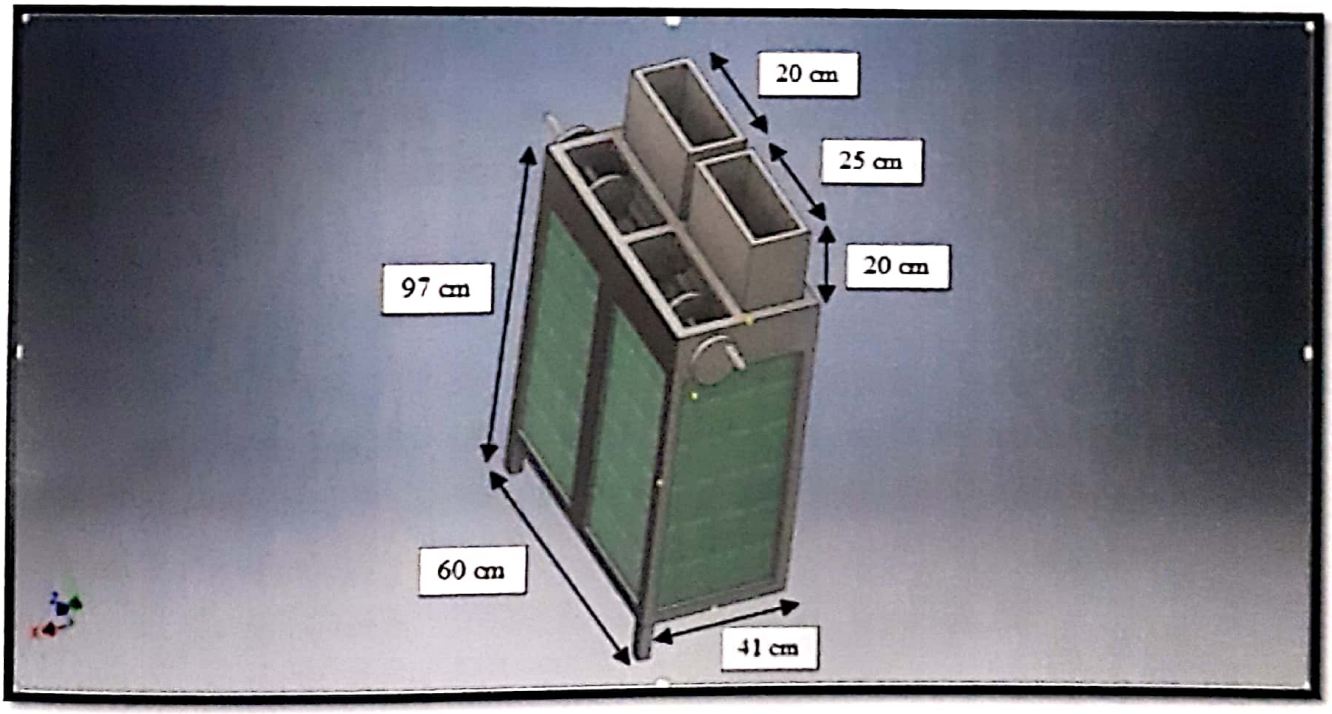


Figure 3.4: Measuring of Project

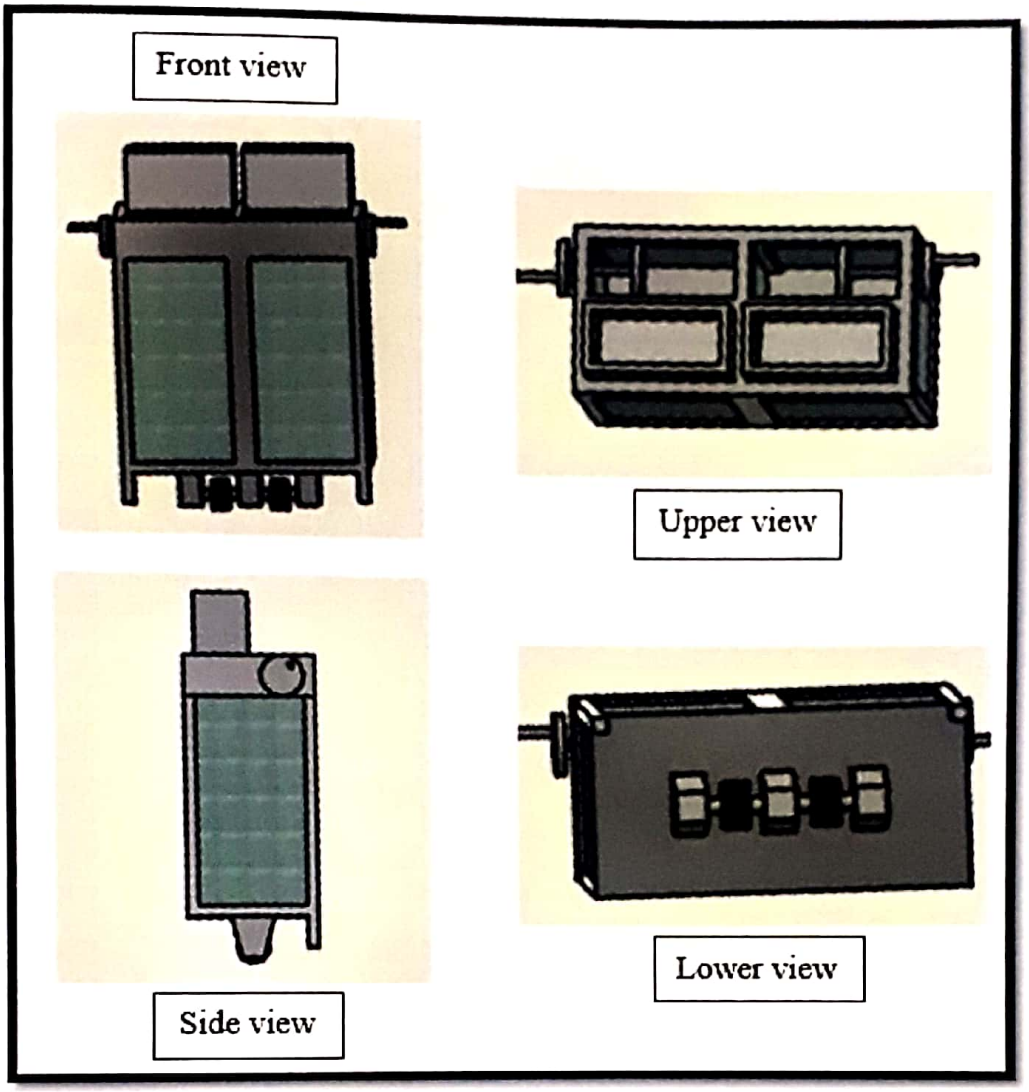


Figure 3.5: Other View of Project

We changed the design of our project a bit and still maintained it in a rectangular shape. Why do we choose that way? Because we want to create two parts to crusher drink cans and drinks boxes. We split the rectangular shape into two sections, the top part is the crusher of manual system and the bottom part is for the recycling bin. At the bottom of the base, we make recycling bins to ensure that their products are crusher directly into the bins. At the top of the base, we created a manual crusher mechanism that could consist of stainless steel. Our exterior uses an aluminium angle bar as a body and mounts the net so people can see inside the product. The size of the product is quite good and the weight is also easy to move anywhere.

3.4 Result

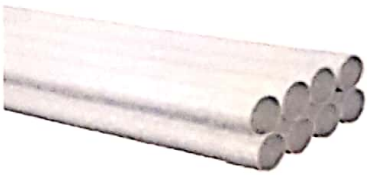
Figure 3.6: Result of Project Design

3.5 Research Instruments

3.5.1 Material Usages

Table 3.1: Material Usages in this Project

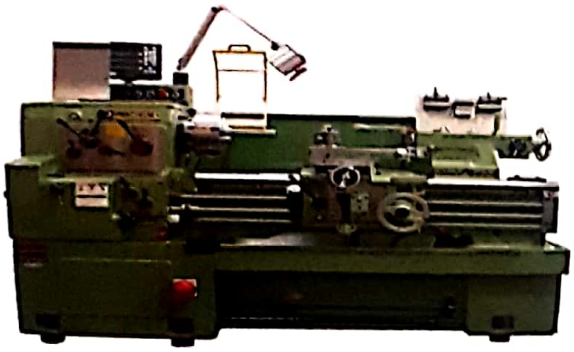
Materials	Example Of Images
Angle bar aluminium	
Stainless steel (Handle)	
Net	
Flat bar aluminium	
Acrylic clear	

Wheels	
PVC pipe	
Rivets	
Stud Screw	
Bearing	
Rod aluminium (1000x4x4mm)	

3.5.2 Tools

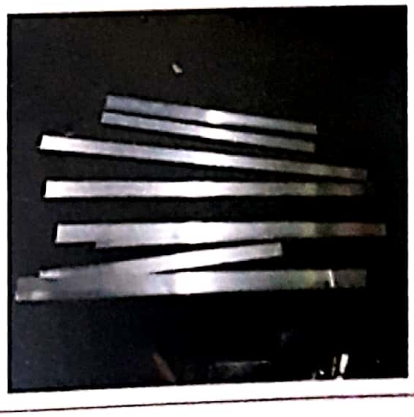
Table 3.2: Tools That Used in a Project

Tools	Descriptions
1) Grinding Machine 	Grinding machine use to finish work pieces that must show high surface quality (e.g: low surface roughness) and high accuracy of shape dimension. Most applications it tends to be finishing operation and removes comparatively little metal. However, there are some roughing applications in which grinding machine removes high volume of metal quite rapidly.
2) Drilling Machine 	Drilling machines use a drilling tool that has cutting edges at its point. Used to cut holes into or through metal, wood, or other materials. 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

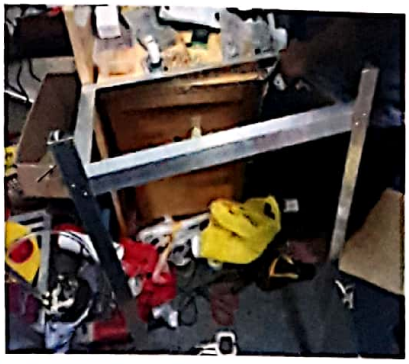
3) MIG Welding Machines 	Metal Inert Gas (MIG) welding is a welding process in which an electric are forms between a consumable wire electrode and the work piece metal, which heats the work piece metal, causing them to melt and join. The machine will use to combine a part of stainless steel from the handle of the projects.
4) Lathe Machine 	Lathe machine use 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.

3.5.3 Fabrication

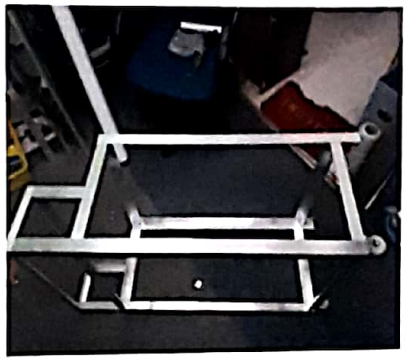
Table 3.3: Work Process

Work Process
1) Identify components parts that you want to change or improve.
2) Make a cutting to angle bar aluminium according designated size using grinding machine. 

3) Begin the work of the external body assembly using the rivets gun and install the wheel at the bottom of the body.

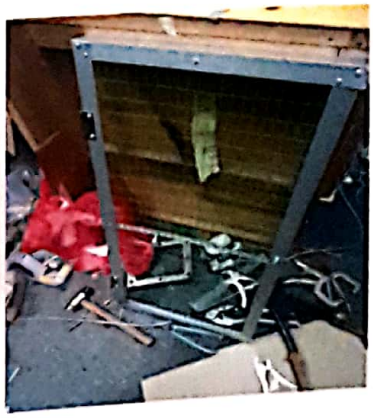



4) Successful the first phase of outside the body by using riveters.



5) Build a door made from angle bar aluminium and combine it with the body.


6) Find a nets that are suitable with the doors and plug it.

7) Make a crusher using a stainless steel, PVC pipe that plugin with bearing and crusher (stainless steel).

8) Install all the components that are complete on the body. Make a mirror using acrylic clear and plugin with stud screw at the top part of project.

9) Handle who has been welded was merged with crusher. Finally, the project is completely and ready to use.

3.6 Cost Budget

The material cost is important and we list down all the material according to the project needed. Following this step we can manage our financial and budget to buy the things

No.	Materials	Quantity	Price (RM)
1	Angle bar aluminium 1½	2	52.00
2	Angle bar aluminium 1	4	65.00
3	Handle	2	50.00
4	Net	1	40.00
5	Flat bar aluminium	2	33.00
6	Wheels	2	30.00
7	PVC pipe	1	24.00
8	Stud screw	2	35.00
9	Acrylic clear	1	38.00
10	M/s hollow	2	30.00
11	Bearing	2	18.00
12	Rivets	1(box)	20.00
13	Rod Aluminium	1	10.00
Total			**445.00**

3.7 Chapter Review

In this chapter, we have been list all component that needs to complete this project. Through this way, we learn how to prepare our group to face a problem that probably will be current to make the project. We have the present introduction to show the people what the project want we do, then the flow chart to show how the work will begin until the end of the project. Besides, we have listed what the component we needed, work process, tool and material selection that suitable with this project. Lastly, we list the cost budget of each all component to control our group financial so that not more cost to spend. We hope the project will follow the plan that has been discussed.

CHAPTER 4

RESULTS FINDING

4.1 Introduction

In this section, we will discuss the findings of the projects we've done a whole semester. The entire chapter is closely linked with the results we have obtained over the years the project runs. We also conducted a survey to get feedback positive and negative of the user. But we also seek advice from lecturers to understand the concepts that we run.

In addition, we are also looking at markets that are appropriate to the project to ensure that we build our projects in accordance with the requirements of the user. Various challenges which we have gone to ensure that this project can be completed on time. Several important phase also plays an important role in the presentation of our project as a rough idea to the supervisor, talks about the problems that arise, surveys and statistics that we had time for a process.

There are also some problems such as the estimated costs exceed the budget, the item easy to crack, the pair mismatches and relatively limited time. It is a bit much affects us to complete this project perfectly to meet the needs of users. This problem can be solved with our discussion group members as well as the opinion of an experienced lecturer.

4.2 Rate of Responses

From the response rate that we can conclude that this will help us understand the needs of consumers in changing existing products. Some aspects are taken into account, such as in terms of price, charm, friendliness and opinions of consumers that we took to complete this project. We also divide the work to get the cooperation of every member of the group to get the right information.

The survey that we did is actually focus on the normally paint customer, a person who open the hardware business and working labours painting the buildings walls. From it we know that the latest up-to-date current development and try to analyse those data. The purpose of this project was to help decrease the number of human work while increase the quantity of the product produced.

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

4.3 Result Finding

The questionnaire was distributed to 100 people we have chosen according to age. Mostly we are targeting labours and small scale. Through this survey, we can identify the problem using the old method.

4.4 The Result of the Questionnaire

We have made a questionnaires to the public and did some researches about our mini project. Here are the responses and answers we received from the questionnaires that have been done.

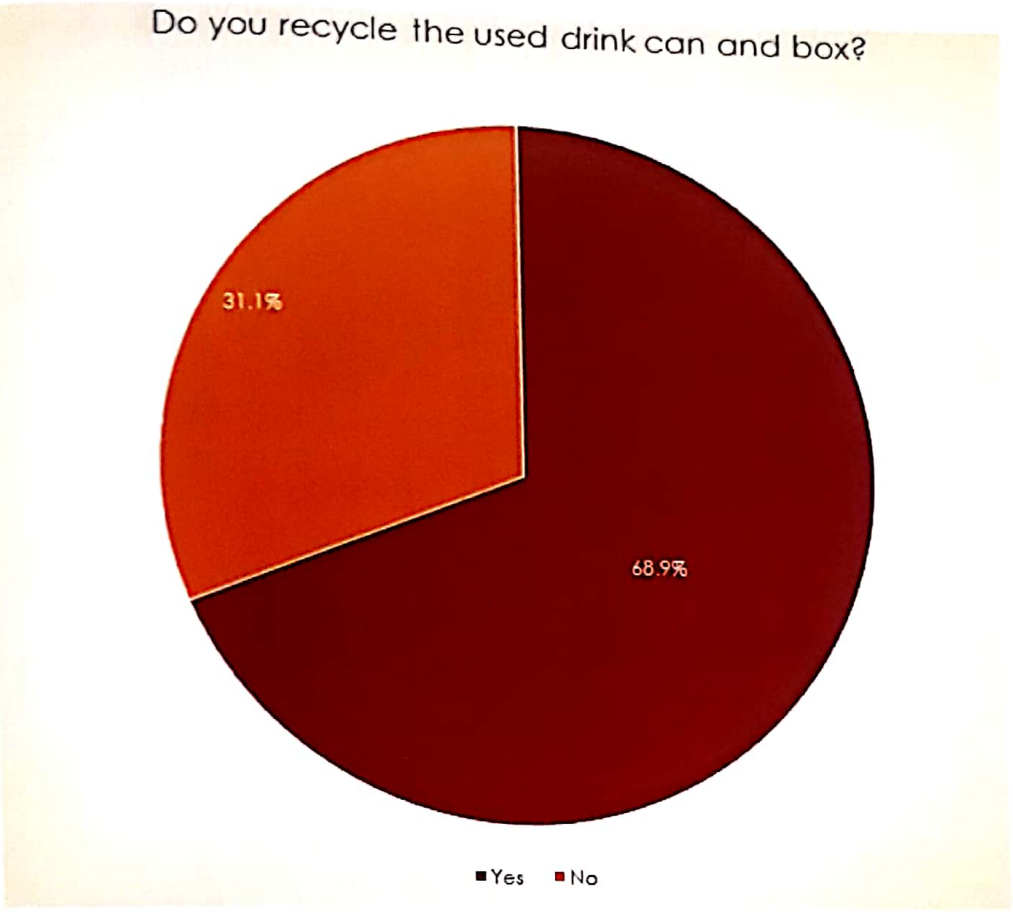


Figure 4.1: Pie Chart shows percentage of people recycle the used drink cans and boxes

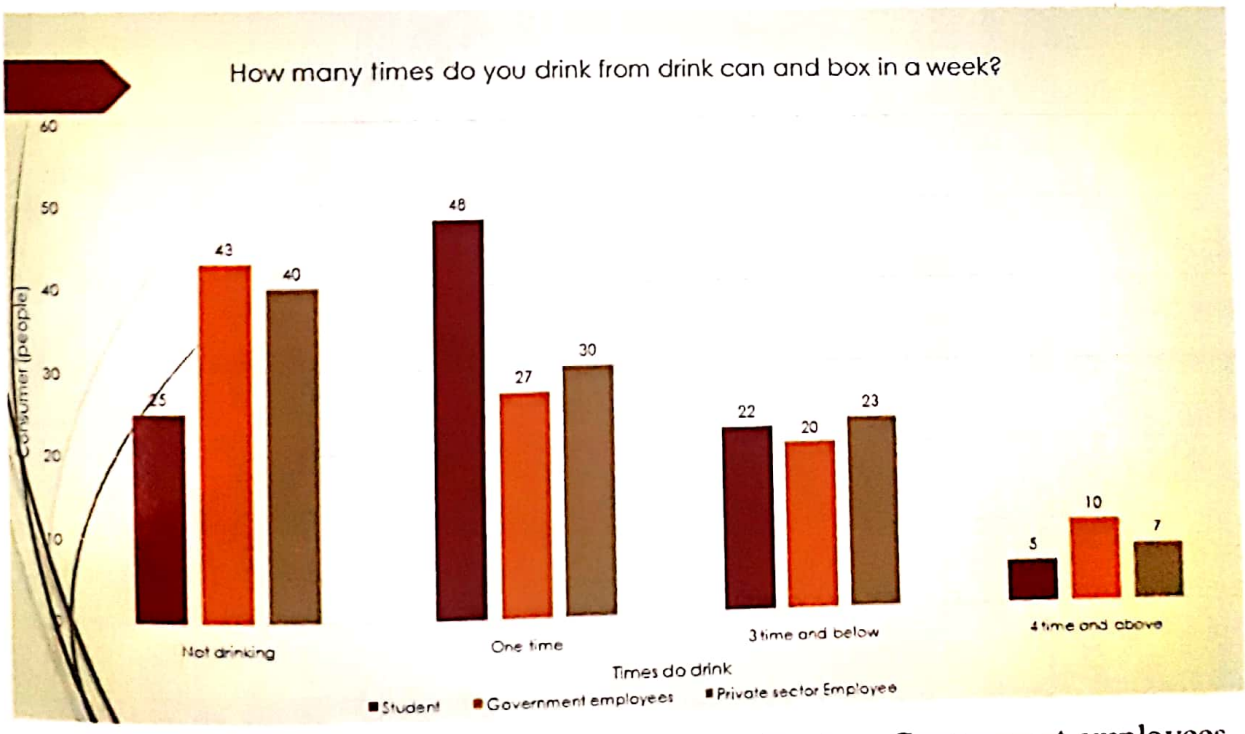


Figure 4.2: Graph above shows how many times Student, Government employees and Private sector employee drink from drink cans and boxes in a week.

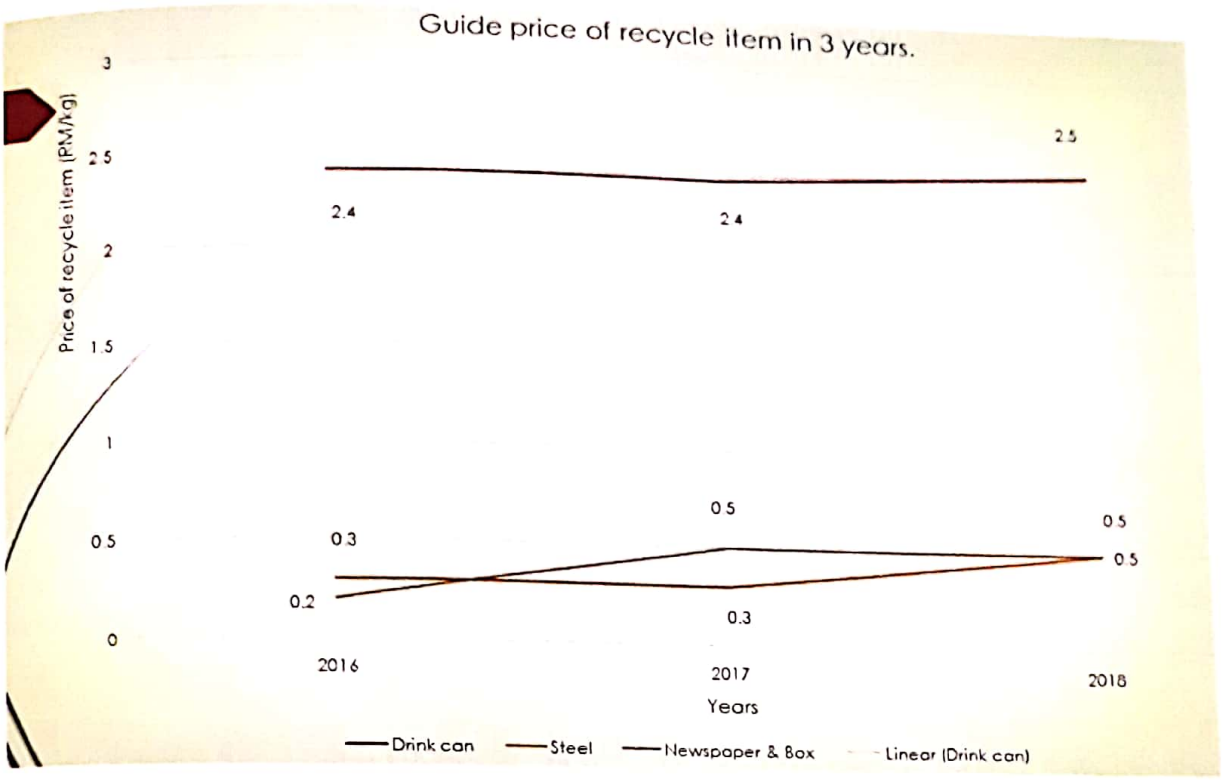


Figure 4.4: Graph above shows guide price of recycle item in 2016, 2017 and 2018.

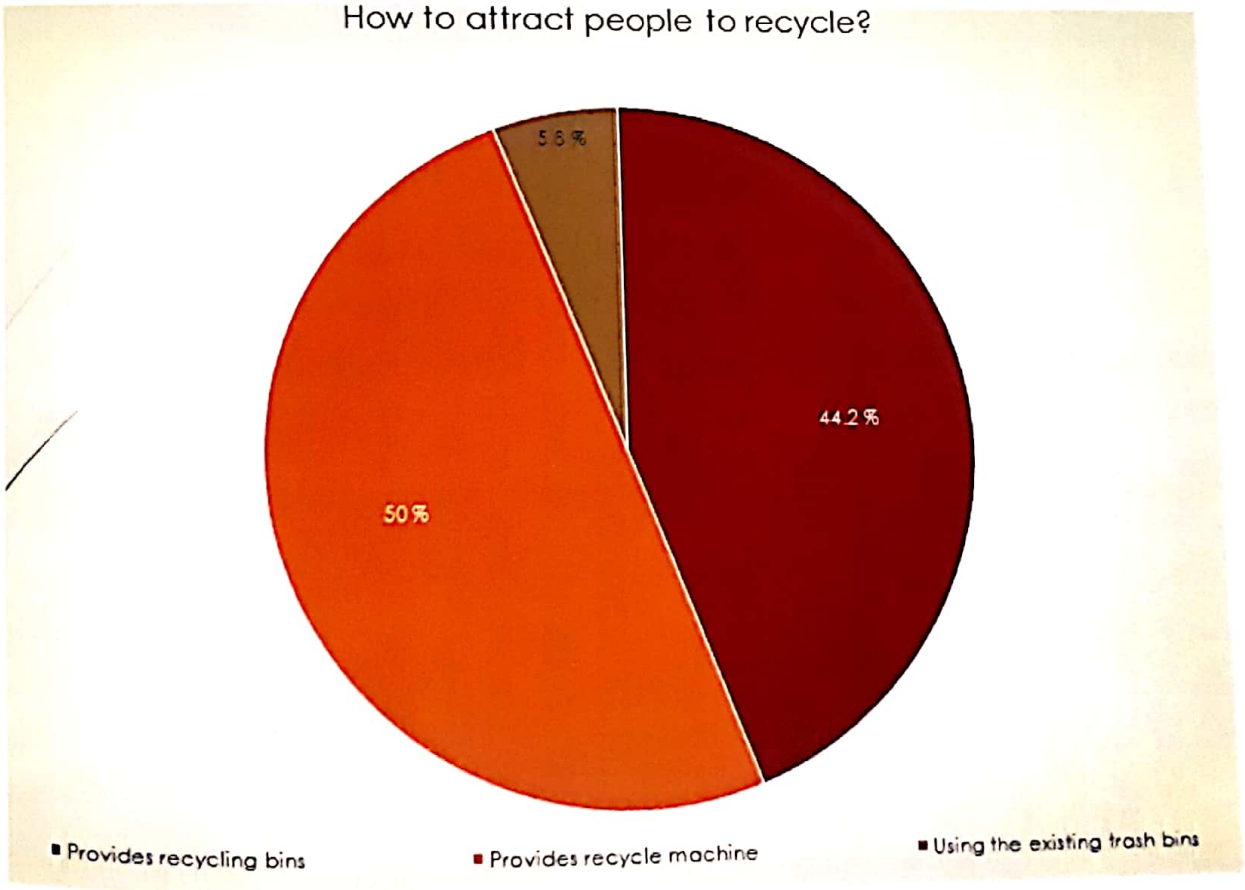


Figure 4.3: Pie Chart shows the percentage of type of method to attract people recycle

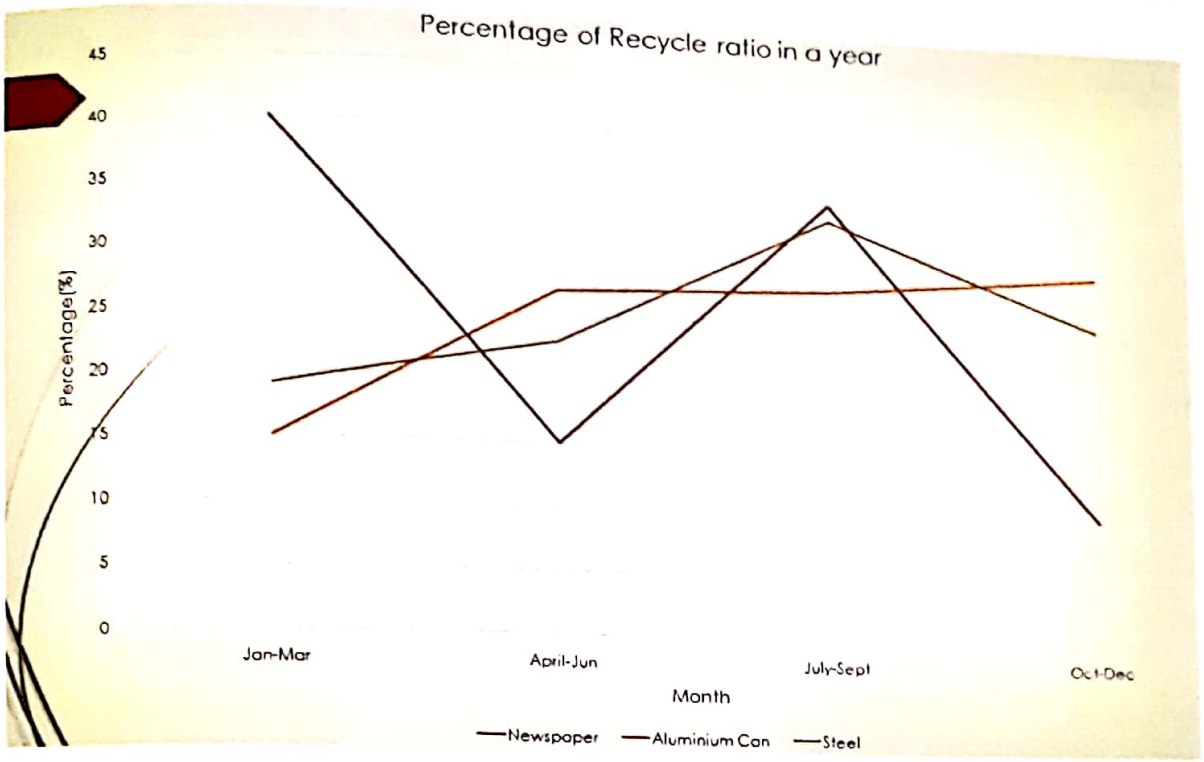


Figure 4.5: Graph above shows the percentage of recycle ratio in a year

4.5 Chapter Summary

- Based on the data we get, it helps to get an information about the mini project and provide some graph charts. From the respondents, we will include it to our final year project.
- The other benefit that we get from this project is profit.
- We aim to put this machine at mall, school, mosque, beside vending machine and others public place.
- We believe this invention can generate more income and lead to recycling as a habit among Malaysian's.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This section will explain the concept of the discussions, conclusions and recommendation. Discussion is the language that shows their efforts to defend, support, and the arguments put forward against something. House Dictionary defines as the subject of discussion exchange views with each other on a matter important.

The conclusion is a decision reached at the end of the discussion. In other words, the conclusion is the result of a conversation. Council dictionary defines a summary of what was discussed, from the contents of the whole of his (essays, lectures)

Section 2 (A) 1950 defines reserves as an expression of readiness / willingness to others for the purpose of obtaining the consent of the person. People who propose can be defined as making an appointment while the person who is the recipient received the promise. The proposal also means an invitation / consultations made by others on a person. A party may accept or reject the invitation made.

5.2 Discussion

The study shows that there are some opinions and different feedback among respondents. Respondents of our products in range of individual and family that will use our Recycle Bin Machine.

Based on the analysis of data, we find that there are many more civilians are not caring or knowing about the 'Recycle Bin Machine' to make their job much easier

to compress drink cans and drink boxes. So, we take this opportunity to introduce and commercialize them out there. I hope the public can take advantage of the best.

Next, we discovered they still maintain the old method of steps on the cans which can cause the injuries. With the reform and innovation, they can to further facilitate the lives of those with more advanced along with the modern age and high-tech.

In addition, many also argue that this Recycle Bin Machine is relevant and helpful. They agreed with the objectives that we order for this product which is to facilitate and expedite the society nowadays. The majority of them are also interested in buying and using this machine if it is successfully marketed.

Regarding the old method which need to steps on the waste disposal will sure take a lot of time and can cause injuries. Therefore, this machine will help them to resolve the dissatisfaction. With one time operate, this machine manage to saves space and get side income.

They also are in the majority of the less frequently used advanced recycle bin machine. Perhaps pattern their daily lives, were familiar with the old methods. So we should encourage them to try new things and get used to the way of life that leads innovation in line with the times.

Next, we put the prices for our product which is may range from RM450 to RM600. The appropriate price for not too expensive and every layer of society we are still able to have it. We wanted to create a product that is sold in the market not only because of its sheer alone but also has the characteristics of affordable housing.

They also admitted having problems or difficulties quickly compresses. Only the experts who can quickly compress the cans and boxes as much the recycle bin machine. Our products came with the both side of drink cans and drink boxes bins. That can save our times from looking for something that can open the eyes of recycling. So, with our products, everyone can overcome difficulties quickly to recycle.

Finally, they agreed to use this machine to be used by small or medium. Therefore, it is not limited to indoor but also for outdoor activities. In fact, it is a universal fact that businesses could use as an example a hardware business and working labourers that paint the buildings wall. Its size is also medium size and easy to carry anywhere.

By the conclusion of this discussion, we obtained an opinion and a positive response in line with the achievement of the objectives that we want.

5.3 Conclusion

This section summarizes the findings based on data analysis, which was done. Summarize the findings of the study are based on the results of testing the hypothesis for the answers to the research questions.

The conclusion is projects that what we do is to helps every level of society feel the change that can have a positive impact from the dealers. It likewise, it can got a benefit businesses either small scale or large scale. Use a project created plays an important role for the industry to innovate already existing projects. The economy gets a positive impact in terms of project created.

Therefore, the selection of projects which we thought was very appropriate to the dealers, especially for paint seller. I hope this project that was created received by all walks of life in the country or outside countries industry.

5.4 Study Implementation

During the last semester project, we have been through several phases that affect important phase. Among the phases that we go through is the selection and presentation of the rough idea, the concept of conducting research, presented a rough draft, discussions on problem projects, drafting period.

The phases mentioned has been much impact either in terms of positive or negative. There are also other factors that influence the duration of the implementation of the project, including the problems that were identified, estimates of materials and their impact on the project, the estimated cost of volatile substances error measurements require us to improve the project again and the difficulty of finding materials and budget process implementation.

All problems can be solved and budget discussions, decision makers and the assistance given by all members of the group

5.5 Recommendation

There are some improvements that we can explain and be able to produce better machines as well as machines that are better toward the commercial. Among the proposed improvements that can be described is:

a) Machine Design

Its design is appropriate to situations such as the use of a suitable home is smaller, while the industry is a large imposing a proper ratio. But, this machine can also be improved with a smaller size and uses a simpler mechanism and have a variety of colours and patterns in a project to look more attractive in the future.

b) Materials

The materials used are lighter because as our prototype only uses is low cost and does not involve the processing of applying heat to food. In the future, if it can be commercialized, or Stainless Steel is a material that is more suitable for the machine if it involves anything related to food products.

c) Costs

The polytechnic hopefully can provide 10% or 20% of the cost of students need in order to implement the project as well to some extent can help students create a product. This problem arises because there are among the students who want to apply a product but cannot be carried out and had to change the other products to be carried out with a relatively high cost.

5.6 Chapter Summary

All the skills and experience available to each member of the group already poured out practiced together for the success of projects undertaken by the group. Test the patience and determination in every member of the project activities carried out for

15 weeks. Running any task entrusted to each member of the group with responsibility and dedication.

In addition, the importance of cooperation in each group as a whole without the cooperation, any work done was not successful and well prepared and perfect. Ideas and insights obtained and precipitated by each member of the group should be researched and investigated properly before it is applied in every work done.

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APPENDIX A

GANTT CHART FOR PROJECT 1 AND PROJECT 2

Appendix A1: Gantt Chart Project Planning for PROJECT 1

TASK DESCRIPTION	ACTION	DURATION (WEEK)														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Finding Group and Supervisor	Plan															
	Actual															
Our supervisor is Mr Haji Rosidi. Members of the group consist of Aiqal Shafiq, Aliff Ashraf and Nawwarah Afifah.																
Finding Tittle Project	Plan															
	Actual															
After some of the titles we have suggested, we have agreed to select the Recycle Bin Machine to be our project.																
Research and Planning	Plan															
	Actual															
Once we have chosen the project title, we will begin to study about the project and design the process to produce the product.																
Confirm the Title of the Project	Plan															
	Actual															
Confirming the title of the project to submit a proposal to the supervisor as a sign that we will continue the project.																
Research and Analysis about Project	Plan															
	Actual															

Study and research in detail on products to be innovated. Need to know the shortcomings of existing products, and the advantages of products to be innovated.																
Survey the Material	**Plan**															
	Actual															
Do a survey to find out what type of material you want to use to create the project.																
Start Writing Report	**Plan**															
	Actual															
In writing a report, we need to write in detail about the project we run. Generally, methodology, problem statement, objective, to whom we want to market (market place), capital summarized to produce this product.																
Project Presentation	**Plan**															
	Actual															
Provide product-related presentations comprising product identification, objective, problem statement, research methodology, research scope.																
Proposal Submission	**Plan**															
	Actual															

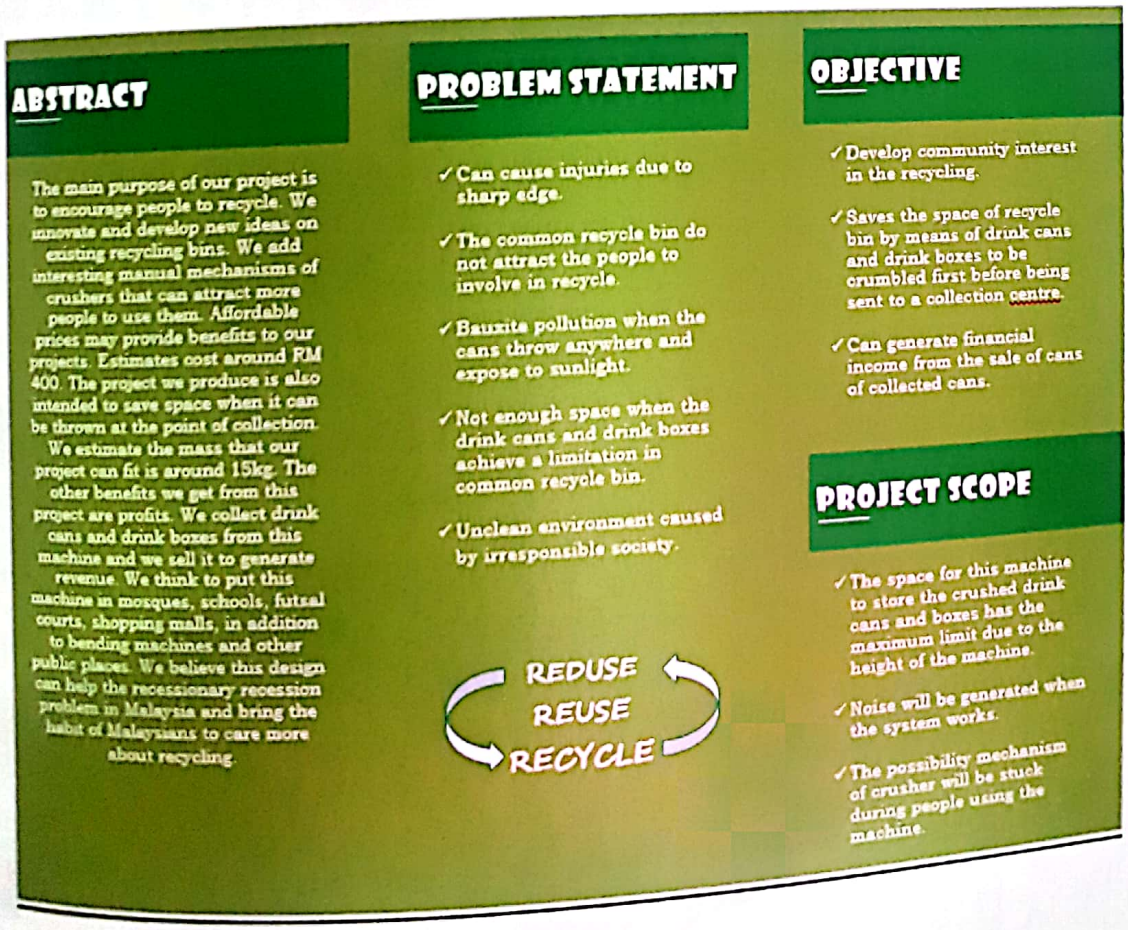
Appendix A1: Gantt Chart Project Planning for PROJECT 2

TASK DESCRIPTION	ACTION	DURATION (WEEK)														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Buying and Obtaining material, items for project	Plan															
	Actual															
Survey materials at hardware and bought the materials. Angle bar aluminium ½, handle, net, flat bar aluminium, wheels, pipe PVC, stud crew, acrylic clear, m/s hollow, bearing, rivets.																
Start the Project	Plan															
	Actual															
Start project by measuring all the materials and then cut. We also do the welding process for the handle according to the size we want. Then we started to build the project one by one. We wanted to make a two holes. One for drink boxes and another one for drink cans. We used the rivets to stick it to the bar aluminium. Pipe PVC as a casing before the drink cans and drink boxes being compress.																
Testing Project	Plan															
	Actual															
In the testing session of the project, we will test the durability of the compress drink cans first followed by drink boxes. Next, we tried to get time duration to compress drink cans and drink boxes.																
Project Report	Plan															

	Actual	
Business plan **Gantt Chart** **Take note about the cost for all material and item that has been used** **Plan to write the project report**		
Writing Report	**Plan**	
	Actual	
Writing a detail report of project, including Gantt Chart, Methodology, summary from business plan		
Presentation Project	**Plan**	
	Actual	
• **Prepare slide for presentation** • **Banner & Brochure** • **Video of usage procedure**		
Report Submission	**Plan**	
	Actual	
Submit the Final Year Project report to supervisor		

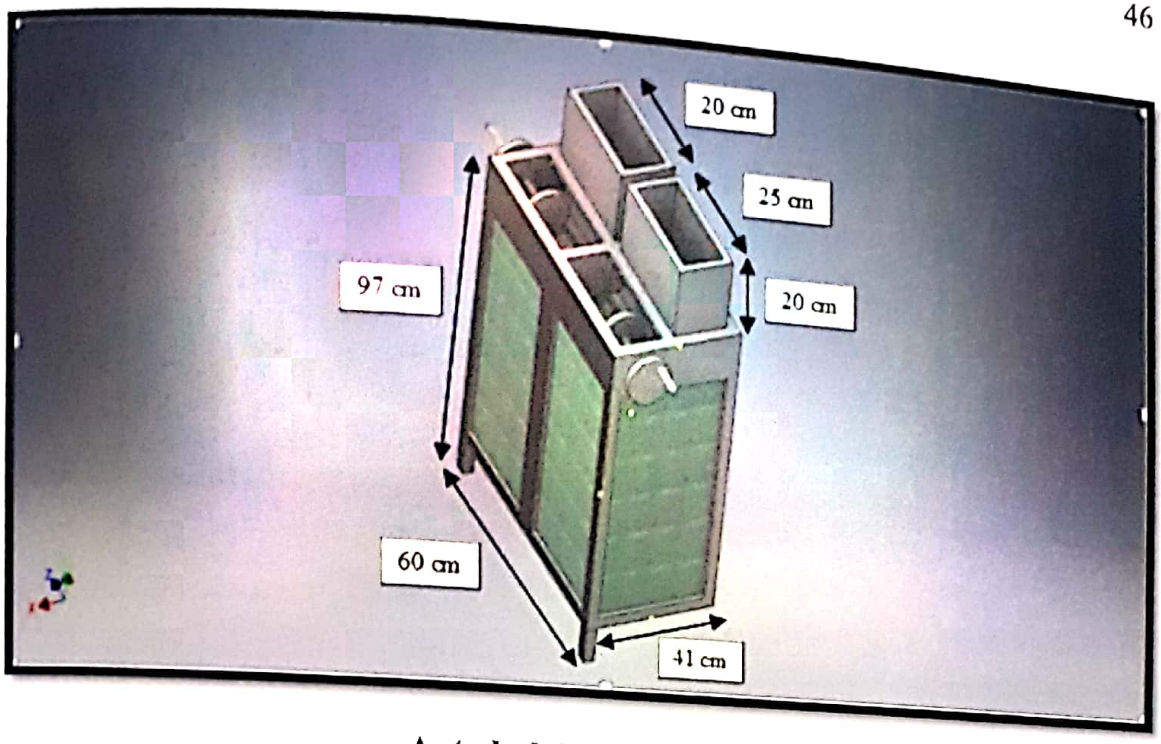
APPENDIX B
BROCHURE

Front view



Back view

APPENDIX C
PROJECT DESIGN



Autodesk Inventor Design

Result of Project Design