



TITLE :

ALLIGATOR WHEELBARROW

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**DIPLOMA IN MECHANICAL ENGINEERING
MECHANICAL ENGINEERING DEPARTMENT**

TITLE

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CHAPTER 1:INTRODUCTION

Writing by Muhammad Danial Bin Zamri

ABSTRAK

Alligator WheelBarrow merupakan satu jenis alat yang sering digunakan dalam bidang pertanian dan juga bidang binaan sebagai perkakas penting. Alatan ini merupakan sahabat kepada petani dan juga pekerja dalam pembinaan untuk memudahkan kerja kerja pengangkutan. Barang yang berat dapat diringankan dengan menggunakan kereta sorong dan ditolak atau ditarik menggunakan tangan manusia. Kereta sorong meringankan beban berat barang atau bahan yang diangkat kerana bebanan tersebut dialihkan kepada sistem roda dan pemegang. Kereta sorong mempunyai kompenan satu roda sepasang pemegang sepasang kaki dan bekas pengisian dan juga hydraulic. Pada masa kini, penggunaan kereta sorong sangat meluas, kebanyakannya dicipta dengan pelbagai bentuk yang luas ataupun besar dan rupa yang berbeza. Terdapat bentuk yang besar sehingga boleh membawa 3 ke 4 guni simen dalam satu masa. Proses mengangkat dan membawa beban ini bertujuan memudahkan pengguna dan menjimatkan masa pengguna.

ABSTRACT

Alligator WheelBarrow are a type of tool often used in agriculture as well as construction as an important tool. This tool is a friend of the farmer and also the construction worker to facilitate the transportation work. Heavy items can be lightened using a stroller and are pushed or pulled using human hands. The wheelbarrow lightens the heavy load of the lifted goods or materials as the load is diverted to the wheel and handle system. The wheelbarrow has a one-wheeled compending of a pair of pairs of leg holders and a filling container as well as hydraulic. Nowadays, the use of wheelbarrows is very widespread, many of which are created with a wide or large variety of shapes and different looks. There is such a large shape that it can bring 3 to 4 sacks of cement at a time. This load lifting and carrying process is aimed at facilitating the user and saving the user time.

1.1 INTRODUCTION

Alligator wheelbarrow liftings the tray with the help of hydraulic jacks . It has lever on the left handle of the wheelbarrow . When pull the lever it will unlock the hook lock which is placed under the tray and lift the tray to unload the load in tray .

1.2 RESEARCH BACKGROUND

Nowadays, most people use technology to simplify the affairs of their lives in all aspects. Humans are always looking for something to help do the heavy and difficult work in their daily affairs. Therefore, Alligator wheelbarrow is built to help reduce the use of manpower when lifting and moving heavy goods from one place to another. The use of Alligator wheelbarrow can also help solve human health problems, especially those involving reports of back pain after the transfer of goods and it can also help reduce the use of plastic.

1.3 PROBLEM STATEMENT

Nowadays, consumers have trouble lifting or moving heavy loads to high places and it also requires a lot of manpower. This problem is usually faced by domestic consumers who do not have sophisticated equipment to help them lift and move heavy goods. reports of accidents that cause injuries while lifting heavy loads are common. This Alligator wheelbarrow project will help solve some of the problems faced by most domestic users, especially in relocation, lifting heavy goods that require a lot of manpower.

Back pain is a huge problem which affects a major segment of the population and the trending current lifestyle is poised to aggravate the situation more unless we take preventive measures.

A frequent medical condition for sick leave is the common back problem. It could be due to arthritis, bone spurs, or bulging or herniated discs in the spine. Pain resulting from these conditions stems from compressed nerves in the spine which potentially can be prevented, minimised or treated.

Identifying the symptoms and getting a diagnosis that pinpoints the underlying cause of the pain is the first step in obtaining effective pain relief.

1.4 OBJECTIVES PROJECT

- I. Design tools that can facilitate the work.
- II. Design and build multi -purpose wheelbarrows.
- III. Build tools that are capable of reducing load or force.
- IV. Hydraulic testing to be able to withstand loads up to 120kg - 140kg
(3 bags of cement)

1.5 PROJECT QUESTION

Problems that often arise during the process of shifting and lifting items are:

- I. The existing wheelbarrows do not have enough efficiency when used to go through stairs or narrow passages.
- II. Strollers are needed to help lighten the weight of the load which is lifted to be brought to the location and lowered easily due to the presence of a hydraulic system
- III. Can save time taken to lift loads and reducing the labor force.
- IV. The use of wheelbarrows today is also very limited due to design its shape is difficult for users to carry large loads such as vases flowers and a shoe closet.
- V. The design of an existing wheelbarrow uses a material not resistant to weather factors.

1.6 SKOP PROJECT

- I. Can carry a weight/load of 120kg - 140kg (3beg cement).
- II. Lifting or carrying goods according to the suitability of the car wheelbarrow used.
- III. Can be used on uneven surfaces "off road" for example in garden areas and construction areas.
- IV. Focusing on the construction, agriculture and livestock sectors.

1.7 SIGNIFICANCE OF THE STUDY/PROJECT

This wheelbarrow can make it easier for users to operate it clearance and maintenance work as loads are transferred to the wheel system and hydraulics to facilitate the removal of an object. Use only need to push the stroller unnecessarily lift it while doing work. Indirectly, he can reduces the risk of shoulder and spine pain. In addition, with the engine versatile on this stroller can save time for users moving or relocating goods from one place to another

1.8 DEFINITION OF TERM

Small vehicles are usually single -wheeled coupled with a hydraulic system used to save energy moving and carrying small loads as well as equipped with a handle on the back that can be pushed and steered.

1.9 SUMMARY

In conclusion, this initial study is very important in succeed in a product. This study is important to get the details which needs to be studied, repaired and taken into account for the success of this project. This project focused on all consumers in the areas of agriculture, construction, or in residential area. The purpose of this project is to further facilitate the work and able to reduce the load. This is very much in line with the needs of the users for whom they need facilities to complete tasks quickly and expeditiously. This is in line with the development of technology and infrastructure which is developed at present.

CHAPTER 2:LITERATURE REVIEW

Writing by Muhammad Danial Bin Zamri

2.1 INTRODUCTION

Based on the research that has been done on the innovation products that have been created that had more or less the same impact as this resulting project, some criteria are emphasized so that the project is not burdened with problems which is more complicated. Easier features and without using energy resources outside is given priority. Nevertheless, the concept that has been highlighted becomes guide in the production of this product. There are several innovative products that displays highly efficient features and can meet the needs of the product in certain situations. Although the scope of the study may be different but in a way overall the main purpose is the same i.e. winding the wire automatically. Previous innovations can also help in the process of selecting concepts, tools used, design, etc. to ensure any flaws in producing "Wheel Barrow Innovation Cluster" can be minimized preferably.

2.2 COMPREHENSIVE WRITING/WRITING/REVIEW/INVESTIGATION OF PREVIOUS RESEARCH RELATED TO THE INTENDED TOPIC

The study began by examining the history of the existence of wheelbarrows. Research early shows wheelbarrows have existed since ancient Greek times again viz in the form of a single -wheeled car. They use this wheelbarrow as medium for lifting loads similar to the use of wheelbarrows in this day and age.



2.1 Diagram Ancient Greek wheelbarrows

In the past too, traditional Chinese people have used a wheelbarrow assisted by wind impulse using sails mounted on the car wheelbarrow as well as having a large wheel in the middle that accommodates the entire load who was appointed.



2.2 Diagram Traditional Chinese windmill

Finally, this wheelbarrow was in seventeenth -century Europe around 1170 and the 1250 which generally has one wheel at the front.

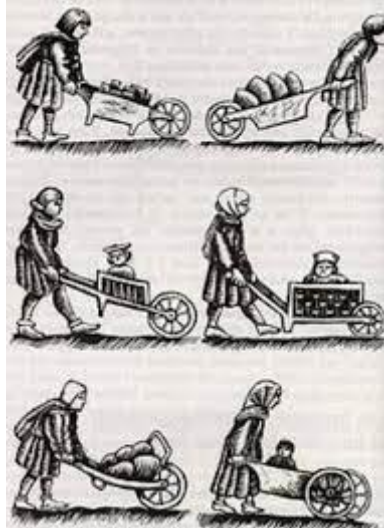


Diagram 2.3 European wheelbarrows

2.2.1 WHEELBARROW IN MALAYSIA

There are many wheelbarrows in Malaysia where these wheelbarrows are differentiated according to the material used. Among the materials used is the type of dead tire or live tires, plastic or iron type filling containers and frame differences the wheelbarrow itself. In addition, its characteristics are different colors, width diameter and height are also different.

The importance of the design and material of the wheelbarrow is to reduce cost nor energy saving. So to get the concept and design appropriate is important to overcome the problem in case of defects in the design shape can even identify the advantages and disadvantages of a design has been generated.

Table 2.1 Component wheelbarrow comparison

CONTAINER	TYRE	FRAMEWORK	ADD
STEEL	DEAD TIRES	STEEL	NO
STEEL	DEAD TIRES	STEEL	HYDRAULIC SYSTEM



Diagram 2.1 example comparison wheelbarrow in Malaysia and project us.

SUMMARY

In summary, this chapter reviews the early history of the wheelbarrow. In addition, we can also find out the types of wheelbarrows that are out there Country and in Malaysia. On the other hand, the selection of components is very important for a wheelbarrow to keep it strong and strong for used. Therefore, the concept applied to the wheelbarrow is also very important in order to facilitate the user while it is in use

CHAPTER 3 : METHODOLOGY

Written by Hanif Ridhwan

3.1 INTRODUCTION :

Methodology is an aspect that needs to be studied to produce a project. Process planning needs to be scrutinized as much as possible to produce a quality project or product. Here is a sequence of all the processes or procedures that need to be gone through before a product is fully ready. Work methods need to be done in an orderly and appropriate manner to get better and guaranteed work and results. With an orderly method of work, then all the work and tasks that want to be done can be followed and implemented in an orderly and safe. In this chapter will discuss about the work steps that will be done to complete this project. Each step of the work that will be done will be described along with diagrams that can help the understanding of the production of this project .

3.2 PROJECT DESIGN :

To make this project a success, a number of steps need to be done and are also necessary adhered to to ensure that the project to be undertaken is smooth and successful. If there is a problem, this flow chart should be referred back to for help before or while the project is underway. With this flow chart it is encouraging a more organized and systematic use of time because it can follow everything instructions so precisely and perfectly. Among the steps that need to be followed is as follows:

RAW SKETCH



Diagram 3.2.1

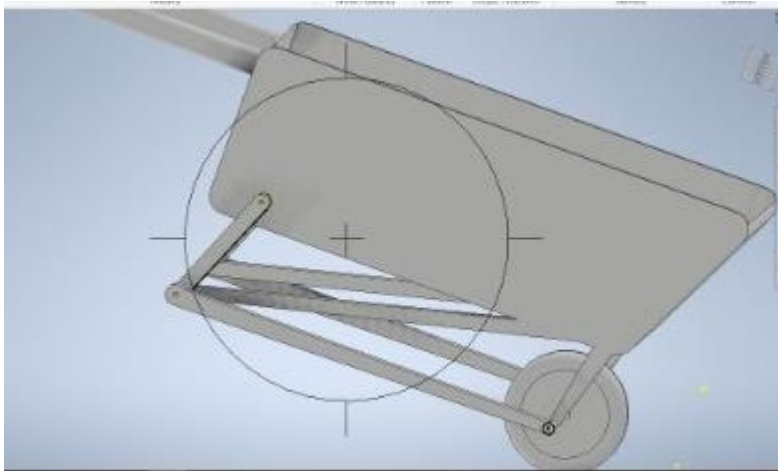
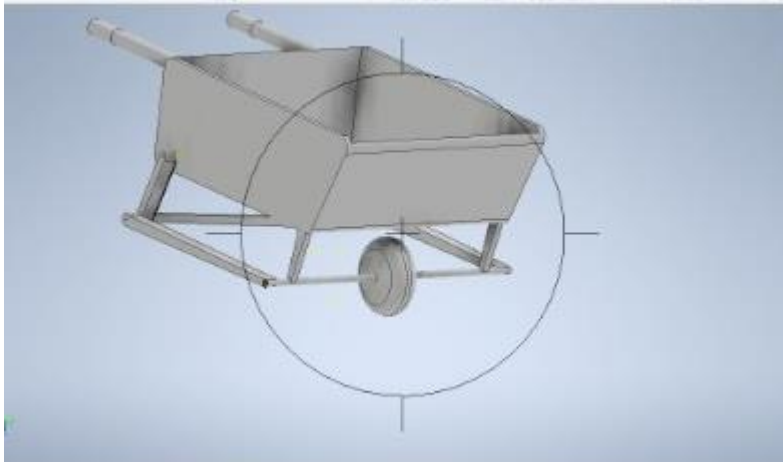


Diagram 3.2.2 and 3.2.3

FINAL SKECTH

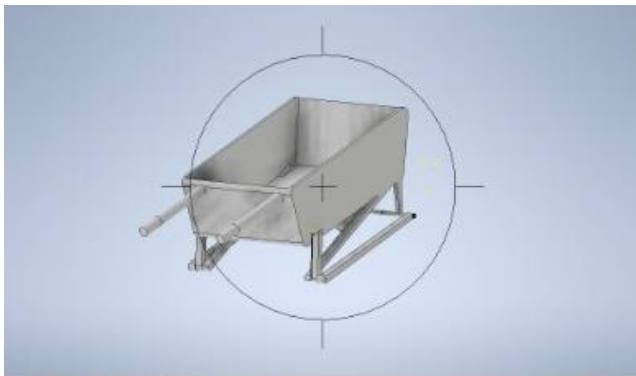


Diagram 3.2.4

3.2.1 TYPES OF STUDY

I . SAMPLING

The method that we choose for this is Purposive Sampling. We use this method to gain detailed knowledge about the respondents that have wheelbarrow at their houses or workplace to help with this wheelbarrow problem .

II . DATA COLLECTION METHOD

This study employed a quantitative approach in the form of a questionnaire. Respondents were given questionnaires to complete using "Google Form." We also utilise the "Whatsapp" app to send the form. The data collection period lasted around 4 weeks. Following that, we used the data we collected to create a pie chart for easy reference.

III . DATA ANALYSIS METHOD

We used descriptive statistics to process and analyse the collected data through 6 short questions. Respondents were given a few options to choose from for their response. From this survey, we obtained around 37 responses. For easy reference, the obtained data was converted into a pie chart using the Google Form additional capabilities.

3.2.2 MATERIAL & EQUIPMENT

The selection of the right components is very important in the form of Smart wheelbarrows to prevent any misuse of materials or components used. Among the components used are:

a) Live tires

The use of this live tire is because it is suitable for use for laborers who work on flat soil structures, neither hilly nor peat because these tires have the advantage of being hard and not easily leaking.

b) Iron filling container

These iron filling containers are more durable and compared to plastic filling containers.

c) Damper hydraulic

These hydraulic dampers are smaller and easier to install on the project .

d) Screws

Screws are used as frame fasteners along the filling container due to strengthens the position of the filling container and is able to be opened without any modification.

II . Manufacturing Costs And Suggested Selling Prices

Material	Price
Wheelbarrow	RM 98.00
Damper hydraulic	RM 28.00
Welding	RM 12.00
Suggested Selling Price	RM140.00

Table 3.2.1

3.3 SUMMARY

The study design, data collection methods, study instruments, data techniques, and data analysis methods were systematically created in the methodological study to know the facts and information to support the study instrument and describe more clearly in this study at the beginning.

Once the data has been analysed, it is necessary to write a summary or draw a conclusion about the findings and hypotheses, such as whether the " Alligator wheelbarrow " is effective or not.

CHAPTER 4: PRELIMINARY INVESTIGATION OF THE STUDY

Written by Hanif Ridhwan

4.1 INTRODUCTION

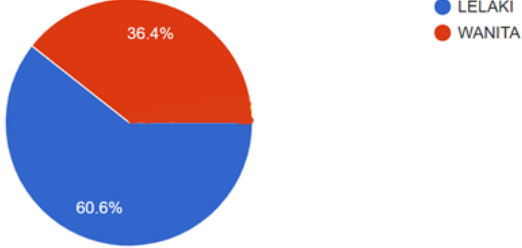
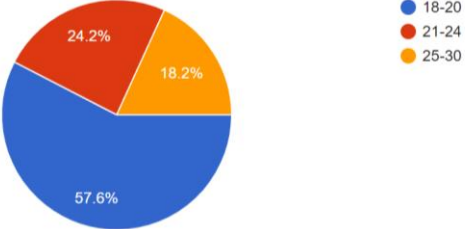
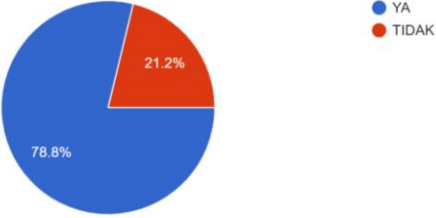
The introduction of this chapter will show the results of studies or research based on the problem questions answered by the respondents about the project that we will produce

4.2 RESPONSE RATE

For respondents by gender, the percentage of males was higher at 60.6% than the percentage of females. Furthermore, the percentage of respondents by status, it can be seen that the percentage of respondents is learning this means that the percentage of respondent strongly agree and high that is 75.8% with this idea. Then, the highest age percentage of the respondents from 18-20 years is 57.6%. Furthermore, responden often having trouble lifting heavy materials using a regular wheelbarrow of this project that can be seen because the percentage who agree is very high at 78.8% agreed by the respondents. Lastly , 100% responden agree that Hydraulic system will save energy and easily daily job .

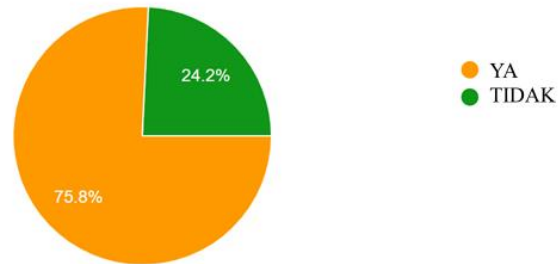
4.3 RESPONDENT DEMOGRAPHIC PROFILE

These are the respondents we found after the questionnaires were distributed to our target market.

<p>JANTINA 33 responses</p>  <p>Legend: LELAKI (Male), WANITA (Female)</p> <table border="1"><thead><tr><th>Gender</th><th>Percentage</th></tr></thead><tbody><tr><td>LELAKI</td><td>60.6%</td></tr><tr><td>WANITA</td><td>36.4%</td></tr></tbody></table>	Gender	Percentage	LELAKI	60.6%	WANITA	36.4%	<p>60.6 percent of the respondents are male while the rest are female which is 36.4 percent.</p>		
Gender	Percentage								
LELAKI	60.6%								
WANITA	36.4%								
<p>UMUR 33 responses</p>  <p>Legend: 18-20, 21-24, 25-30</p> <table border="1"><thead><tr><th>Age Group</th><th>Percentage</th></tr></thead><tbody><tr><td>18-20</td><td>57.6%</td></tr><tr><td>21-24</td><td>24.2%</td></tr><tr><td>25-30</td><td>18.2%</td></tr></tbody></table>	Age Group	Percentage	18-20	57.6%	21-24	24.2%	25-30	18.2%	<p>From the age factor, 57.6 percent are between the ages of 18 to 20.</p>
Age Group	Percentage								
18-20	57.6%								
21-24	24.2%								
25-30	18.2%								
<p>ADAKAH ANDA MENGALAMI MASALAH UNTUK MENGANGKUT BAHAN BERAT ? 33 responses</p>  <p>Legend: YA (Yes), TIDAK (No)</p> <table border="1"><thead><tr><th>Response</th><th>Percentage</th></tr></thead><tbody><tr><td>YA</td><td>78.8%</td></tr><tr><td>TIDAK</td><td>21.2%</td></tr></tbody></table>	Response	Percentage	YA	78.8%	TIDAK	21.2%	<p>75.7% of responden often have trouble carrying items</p>		
Response	Percentage								
YA	78.8%								
TIDAK	21.2%								

ADAKAH ANDA BERMINAT JIKA KAMI MENYEDIAKAN KERETA SORONG YANG MENGGUNAKAN SISTEM HIDRAULIK

33 responses

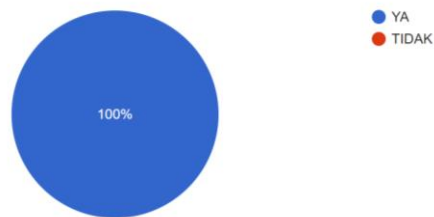


75.8% responden interested in our wheelbarrow.

24.2% not interested with our wheelbarrow

ADAKAH DENGAN MENGGUNAKAN SISTEM HIDRAULIK INI AKAN DAPAT MENGURANGKAN BEBAN KETIKA MENGANGKAT BAHAN SEPERTI BATU BATA , BEG SIMEN DAN SEBAGAINYA

33 responses



100% responden agree that Hydraulic system will save energy and easily daily job

APAKAH PENDAPAT ANDA MENGENAI PRODUK INI

30 responses

no answered.

awesome

wheelbarrow pula..haritu lain dasar fakehope

sangat produktif

Produk ini memng mntap. Saya nk minta buat satu produk untuk saya dpt kan si dia blehh?

Boleh meringankan sedikit beban untuk pekerja

Produk yang bagus bagi setiap individu yang tak boleh angkat berat sebab dapat ringankan beban serta jimatkan masa.

Kereta sorong helicopter saya mau

Memana paduu

APAKAH PENDAPAT ANDA MENGENAI PRODUK INI

30 responses

Memang paduu

Dapat meringankan kerja yg berat dan mudah digunakan oleh pelbagai golongan tak kira tua atau muda.

Hmm good idea laa kut ? Memudahkan lagi nak angkut barang berat. Macam kurangkan beban haa gituu.

Produk ini sangat menarik dan dapat menjimatkan masa ketika menggunakan produk ini.



Bagus dapat membantu meringankan beban utk dibawa

saya setuju dengan adanya sistem ini

Kerja akan jadi lebih mudah Dan pantas

Sangat la rancak ! Disana rancak disitu rancakkk BERDOSAHHH

APAKAH PENDAPAT ANDA MENGENAI PRODUK INI

30 responses

Pendapat saya adalah.. kereta sorong ini akan menjadi tumpuan kepada golongan warga emas .. kerana dapat memudahkan kerja harian bagi mereka yg gemar menggunakan peralatan tersebut .. BAGUS

Nice product

Saya tidak tahu apa apa tentang produk ini tapi saya rasa produk ini dapat memudahkan kerja kerja berat

Mantul siak

baik

bagus

MANTAP

sangat berguna

Terbaik

APAKAH PENDAPAT ANDA MENGENAI PRODUK INI

30 responses

- baik
- bagus
- MANTAP
- sangat berguna
- Terbaik
- Amat amat dasyat!
- sangat worth it dan memudahkan kerja juga menjimatkan masa
- Bagus untuk di komersial kan
- Saya suka produk ini nampak kreatif dan memudahkan kerja

4.3 Summary

Last, the respondent response is important in order to have a great project because their perspective can encourage us in achieving the perfect objective as well as filling certain gaps in our project.

CHAPTER 5 CONCLUSION AND SUGGESTION

Written by : Azim Luqman Bin Nohardy

5.1 Introduction

Introduction of this chapter is intended to inform about the content of the chapter as a whole.

5.2 Conclusion

The quality of this project will be constantly monitored in order to develop the best feature based on the desired objectives and to ensure greater safety. The study's findings can be applied in given the research topic.

5.3 Suggestion

The research proposal is a list of various more study recommendations to support the findings of the research in the field. In other words, new recommendations based on the study's findings should be presented. This part should also provide information about the study's significance and consequences.

5.4 Up Coming Suggestion

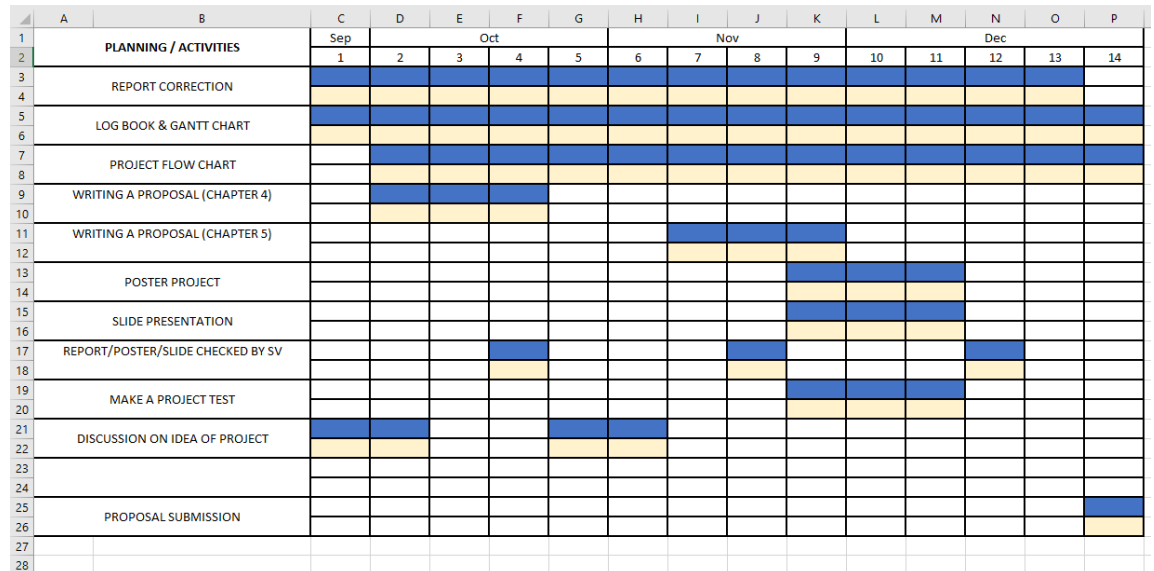
- I. Add interesting feature such as feature to detect Weights using scale weight
- II. Able to control the speed of the gutter cleaner
- III. Add cooler to gutter cleaner in case the weather is super hot

5.5 Refference

- I. <http://animhosnan.blogspot.com/2010/11/kereta-sorong-wheelbarrow.html>
- II. http://ms.swewe.net/word_show.htm/?1170552_3&Kereta_sorong
- III. <https://www.cikguhailmi.com/2013/03/sains-menganalisa-tuas.html>
- IV. <https://www.doctoroncall.com.my/soalan/sakit-tulang-belakang>
- V.

5.6 Attachment

I. Gantt Chart



II. Cost And Expenses

Material	Price
Wheelbarrow	RM 120
Damper	RM
Welding	RM 50
Total Price	RM
Suggested Selling Price	RM

III. Flow Chart

