



TITLE :

EMERGENCY HOSE TYRE PUMP

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ABSTRACT

(ABANG MOHD SUFYAN)

Emergency Hose Pump Tyre is an innovative tyre pump rather than a normal tyre pump. It is made up of modified spark plug, spiral hose, oil filter, non-return valve and tyre valve connector. This pump can be used in case of emergency when the motorcyclist has low tyre pressure. The first objective of cost of calling maintenance team for help. Second objective of this project is to prevent any further damage to the bike that will need more cost to repair such as crooked rims. Usually normal tyre pump is ideal to use and stored at home or garage because of it's size. The size of regular tyre pump is usually not relevant to be put in backpack because of its size will consume too much space or maybe it will not fit in it at all. However, our Emergency Hose Tyre Pump is significantly smaller in size and it is relevant to put in backpack. In addition, our invention is also taking the advantage of rider that is travelling a far distance because they usually bring any necessary tools for emergency with them such as spanner to open spark plug. We take the advantage of it so the rider will not has to bring any special tools just to use our product. In addition, our product functioning by making use 2 out of 4 stroke in a 4 stroke engine that are intake stroke and compression stroke. We are using the compression inside the cylinder to pump tyre.

Keyword: single piston motorcycle, kick starter, deflated tyre, emergency, rider

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CHAPTER 1

(ABANG MOHD SUFYAN)

1.1 INTRODUCTION

In this digital era, there are 2 types of pump that are used globally that is pneumatic pump and hydraulic pump. Hydraulic pump is a mechanical device that converts mechanical power into hydraulic energy. It generates flow with enough power to overcome pressure induced by the load. Hydraulic pump usually used liquid as a medium to flow the energy. Next, the basic principle of a pneumatic pump is focused on the use of pressurized gas or air to move media. These pumps utilize a double piston system. One of these pistons have a much smaller diameter than the other, and they are separated by an airtight chamber filled with a liquid or a compressed gas.

Air pump is a device that is used widely in automotive and industrial field. The world first air pump was invented John Boyd Dunlop that is bicycle pump. it is believed to have been in or around 1887, which is when the first inflatable tire or pneumatic tire was produced. The first bicycle pump is made up of a metal cylinder that had a metal rod running down the middle of it. This would have forced the air out of the cylinder and then sucked in new air when the metal rod was pulled up again. Many modern pumps nowadays often use very similar method, such as the electric pumps, use as automated pumping mechanism.

Most of the time, vehicle user usually pump their tyres using tyre inflator that is provided at the petrol pump station. Component of the tyre inflator at the petrol pump station are hose, pressure gauge, tire valve connector and compressor. Usually length of hose pump is around 10 to 15 meter , The hose is made up of natural synthetic rubber. Some of it is made up of plastic, vinyl and silicone, The advantage of natural rubber has several advantages as a material for hoses and tubing because it has superior elasticity, can withstand high temperature and pressure and require less energy to produce than many synthetic materials.

Usually pumps that is provided by petrol stations are big and bulky, the pump itself cannot be carry or moved from one place to another. Our pump is slightly different from other pump that exist at most of the petrol station. Because our pump is portable and easy to carry it is also low in cost when it comes to maintenance fee.

1.2 PROBLEM BACKGROUND

Nowadays, most of automobile on the road use tyre to support the weight of vehicle, absorb road shocks, transmit traction, torque and braking forces to the road surface and change the direction of travel. Every type of tyre has their own efficient level of pressure to ensure that these functions can be done well. If the tyre has low amount pressure, it will give too much traction that will affect the torque of the vehicle and that will affect the fuel efficiency. While, if it has too much pressure, it will the traction will decrease and the vehicle will be hard to control. To solve this problem, every tyre company has set certain amount of pressure according to the the size of tyre so all the function can be utilized fully and can ensure the safety of the driver or rider.

Meanwhile, people usually depend on vehicle to go from one place to another. Transportation such as motorcycles are most likely to be used by people because of it's ability to interspersed between cars in heavy traffic. Motorcycles is also one of the vehicle that use tyre to maintain the function as stated above. The pressure of the tyre can be reduced from time to time due to several factors such as weather, condition of road that is bumpy and condition of tyre. Therefore, the petrol pump is of the most popular destination for the rider or driver to go to pump their tyres to the right amount of air pressure. However, the distance between petrol pump at highway or city road usually are quite far from each other. This will give a hard time to the rider that face low amount of air pressure to push their motorcycle to nearest petrol pump station.

Therefore, we have created a product which can help rider to pump their tires anywhere and anytime. The product is named as 'Emergency portable hose pump tire'. This product is named emergency portable hose pump tire because the pump can be used to pump their motorcycle tyres in emergency. This can help them to continue their journey and most importantly to reach the petrol pump station to adjust their tyres pressure to the right amount of pressure. It also can help motorcycle that has been left at home for a long period of time so that users can pump their tyre before going to the petrol pump station to pump their tyre pressure accurately.

1.3 PROBLEM STATEMENT

From observation, most motorcyclists have problems with less air pressure in motorcycle tyres in areas where do not have tyre pump facilities such as petrol pump stations. Furthermore, the other pump that are sold in market are usually too big and hard to carry. The foot pumps available in the market are easily damaged and most of the pump sold have the problems with the valve.

Firstly, long distance traveler usually often face problem with their tyre pressure on their way to destination. It is hard for the rider if they can't pump their tyres to at least reach nearby petrol station. If they still continue to ride the motorcycle in case of very low tyre pressure, it can spoil his wheel and affect the riding experience and most importantly can affect his safety because of hard to control the motorcycle.

Secondly, long distance rider usually bring backpack with them and some tools for emergency. If the pump is also large in size, the rider maybe could not bring the pump with them because of lack of space because usually pump that is sold in the market is large in size.

Thirdly, commercial pump usually does not last long and if some parts of it is broken, we need to buy a new pump to replace it. It will cost a lot of money just buy a new pump due to one of the parts is broken.

1.4 OBJECTIVE

There are several objectives of this project that are:-

- To ensure rider can pump their tyre a bit before they can arrive at petrol station to pump their tyre at the right pressure.
- Rider don't need to carry a big pump which is hard to carry because of lack of space.
- Rider can repair their pump at lower cost by just 'plug and play' the broken parts.

1.5 PROJECT SCOPE AND LIMITATION

The scope of this project is more plunge to motorcycle rider. This project is suitable and more efficient to single cylinder motorcycle. This project is more suitable for single cylinder motorcycle is because this project only need 1 spark plug slot. Usually 2 cylinder piston or a higher displacement engine has a higher compression ratio than single cylinder. As we know, every tyre has their own limit for air pressure in it. If it exceeds the limit, the tyre will eventually blowout and premature wear on the tyre. That's why our target audience for this project is motorcycle rider that use a single cylinder engine.

There is 3 scope for our project that is shape, maintenance and riders' common problem. The scopes are :-

1. This project aim to lower the burden of rider. The riders will not have hard time to bring a bulky pump in their backpack.
2. This project is also aim to make the rider will not has to call any nearest help centre or relatives for help.
3. This project also helps the rider to prepare for any unexpected incident for example deflated tyre.

Meanwhile, the limitation for our project is:-

1. The portable hose pump only works on a single cylinder motorcycle only because the hose pump only uses one modified spark plug.
2. Next our limitation for the project is the hose pump only can be used when a motorcycle has a kickstarter because without a kickstarter we cannot move the piston up and down to make air compression come out from the spark plug.
3. Lastly, our limitation for the project is we cannot use to pump when the tyre has a leakage.

1.6 The Importance Of Project

This project has various importance of it. Such as :-

- To help rider stranded at the side of the road because of lack of tyre pressure.
- To ensure the riders will not have to use their money on any unwanted issue such as crooked rims.
- To ensure riders can save cost on calling the maintenance team for help.

Definition Of Term/Operation

The name of our project is Emergency Hose Pump Tyre. With that, we will state the definition of any term or operation involve at the name of our project.

- Emergency: A serious, unexpected, and often dangerous situation requiring immediate action.
- Hose: A flexible tube conveying water, used chiefly for watering plants and in firefighting.
- Pump: A mechanical device using suction or pressure to raise or move liquids, compress gases, or force air into inflatable objects such as tyres.
- Tyre: A rubber covering, typically inflated or surrounding an inflated inner tube, placed round a wheel to form a soft contact with the road.

With all the definition stated above, we can conclude that our project is a hose that is fitted and spark plug and fitted to the spark plug slot to pump tyre of our single-cylinder motorcycle in an unexpected situation to prevent any further damage to our motorcycle.

1.7 Research Question

- Did using our emergency tyre pump can help the rider that are staranded on the middle of the road due to low tyre pressure?
- Did our pump consume a short amount of time to use it?
- Can our pump be brought in riders backpack and is the pump size in practical to be brought in it?
- Did our pump take a lot of costing compare to the pumps that are in the market?

1.8 Chapter Formulation

Nowadays, almost every vehicle users will face the problem of flat tyre at least once in their lifetime. In the United States alone, there is 220 million cases of flat tyres per years including case of tyre punctures. Besides, at our own land, Malaysia also we will encounter many deflated tyres cases especially the motorcyclist that is using tube tyres. Generally, this chapter is discussing and explaining about introduction, problem background, problem statement, objectives of the project, scope and limitation, importance of project, definition of term and operation, and the summary of the project. In conclusion, these factors in very important in ensuring the success of the project.

CHAPTER 2

(MUHD ARIF HAZWAN)

Literature View

2.1 Introduction

At the initial stage of the project, a literature review was carried out i.e. a study the former which includes studies from sources such as sources internet, newspaper , magazines and related resources emergency tire pump hose run. Collection of information from the study literature is particularly important as an initial step of study. In execution a project, various steps must be taken from the beginning until the completion of the project. Problems encountered on the product are studied and refurbished to get a better product.

2.2 Theoretical concept

There are 2 types of pump systems in the research that I found that is hydraulic system and pneumatic system, there are some significant differences can be seen allows us to know the type of system. This system is very important in certain industries to complete and facilitate work compared to using manpower.

Hydraulic systems are often used in the automobile industry, brake systems and so on. This system uses liquids as the medium of energy transmission. As we know according to the concept of the immortality of energy that is energy can not be created and destroyed but energy can be changed from one form to another. The fluid commonly used in hydraulic systems is oil because it cannot be compressed and also serves as a good lubricant. Hydraulic equipment tends to be larger because the pressure produced in this system is large i.e. more than 10bar, this indicates that the force produced is high. in accordance with the heavy work performed. Next the pneumatic system uses

energy stored in the form of money air has been compressed to produce a work. The advantage of using this system, is that the ambient air used does not have harmful substances and resources that will not be depleted, has a simple design and control of the use of components.

Bike tyre pump have 5 stage that is piston rise, air enter chamber, piston lower, Outlet valve and air inflated tire. The piston rises when the user pulls the handle the rising of the piston draws air into the body of pump .in the second stage air enter the compression chamber , the inlet valve opens to allow this to occur the air contained in the chamber is now ready to compressed. In third stage the user lowers the piston which closes the inlet valve the inlet valve remains closed while the piston is being pushed down this mean that the air has no other way to flow out . in the fourth stage the outlet valve opens the built up pressure in the chamber forces this one way outlet valve open and because it's a one way valve the air flow only in the desired direction from the pump chamber into the tire. In the final stage air inflated the tire the compressed air leaves the pump follow the hose and enter into the tire. Inflating it more and more with each downward stroke of the piston.

A compressor have 2 type which is dynamic and positive displacement. There 2 types of a compressor shows the different motion that the piston movement .Rotary compressor in a category positive displacement that use rotary motion to compress air such as sliding vane, scroll, lobe, screw and liquid ring compressor. Screw compressors have two screws inside the motor, turning continuously in opposite directions. The motion of the screws creates a vacuum that sucks in air. That air becomes trapped between the screws' threads and is compressed as it is forced between them. Finally, it is sent through the output or into a containment tank. Next , reciprocating compressor use a reciprocating motion of piston to compress air. For example piston compressor and diaphragm compressor. a rotor spins, causing a piston to move up and down. When the piston goes down, freestanding air is pulled into a chamber. Then, the air is compressed and forced back outward as the piston rises back up. Some compressors, called single-stage compressors, use only one piston. Others, called two-stage compressors, use two pistons and are able to pressurize more air. The reciprocating type of air compressor is one of the most common.

2.3 Previous Research

All analyzes collected regarding pump product, all of them have the same function which is the main function is let out the air to put in such as tire and ball. There are many types of pump that can be found at the online shopping especially because there is the platform shop where can people find what they want, almost all our desire can perfected and the item also from various countries and brand. Nowadays, as known the technology move forward unexpectedly to facilitate human work that can give very big impact for everyone, it is because the researchers find more advance to create or modify some item to be more function from before so they can keep the item at the market with a new price. For example, with the creation of modify technology to be more advance people have many advantages such as the wok became easily, a lot of time can be save and more. Thus, with the creative idea can make the pump to became always at the market , with related by surrounding and their function to the customer.



Diagram 2.3.1 Air Compressor

Next, on the diagram above we can see the compressor that almost every workshop have it because without the compressor workshop worker cant make their duty such as repairing at the main point is this compressor not just let out the air but can come to be more function. This compressor is the device that can convert power from air to potential energy, which means the function of this device not only can fill the pressure air. The basic component is cylinder liner, piston, piston rod, big end bearing and main bearing, crank shaft and drive motor this component must doing their duty so the compressor will work. Mostly compressor at the workshop or factory dealer 125 and 175 psi, air pressure is usually measured in pound per square inch (psi). Weight of the compressor is average 350 kg but it depends on capacity liter their tank and the types of the compressor, there also many factor that the compressor become more weight such as high psi require but with this weight and the high pressure it shown obviously not every people will buy it.



Diagram 2.3.2

Lastly, we have this tire inflator mini held pump that shown on the diagram above those cost to buy this device is RM 98.50 it is cheapest rather than the compressor because of the material and ability. This device has modified from the bulky compressor that difficult to bring to be side become a portable handheld that use a small space area to store with weight 550g. This device also use lcd screen shows the pressure, so you can monitor the pressure without bending to see the bottom different than compressor that use analog to read the pressure. The maximum inflation pressure this tire pump is 100psi, high pressure can be produce by this small device make the unique and amazing product. In addition, it is must connected with 4M charger if not this device will not work, For my opinion, it will better if the portable device have battery that can charge so

we doesn't depends on somewhere to make the device turn on, in case the bicycle rider bring it together it doesn't function anymore because it must connected by electric supply. Overall, both device that have shown have their own pros and cons and it depends on the consumers perspective on choosing.

Types Of Tyre Pump

 <p>Diagram 2.3.3 Air Compressor</p>	<p>Material: cast iron or aluminium Weight: 163kg Dimension: 163 x 50 x 105cm Colour: green, red and ablack Maximum psi: 203 Cable length: 20 m Durability: Excellent Battery: Doesn't use battery</p>
 <p>Diagram 2.3.4 Bicycle Tyre Pump</p>	<p>Material: aluminum alloy Weight: 0.25kg Dimension: 32x13cm. Colour: variety colour Maximum psi: 60-70 Cable length: 75cm Durability: Standard Battery: Doesn't use battery</p>

 <p>Diagram 2.3.5 Foot Pump Tyre</p>	<p>Material: Steel Weight: 2.35 kg Dimension: 350x105x100 mm Colour: Black, Red, Blue , Yellow and more Maximum PSI: 80 Cable length: Around 30cm Durability: Excellent Battery: Doesn't use battery</p>
 <p>Diagram 2.3.5 Tyre Inflator Mini Handheld Pump</p>	<p>Material: Acrylonitrile butadiene styrene (plastic) Weight: 550g Dimension: 150x61x43 mm Colour: Black only Maximum PSI: 100 Cable length: 10 cm Durability: Excellent Battery: without battery(need work with 4M car charger)</p>

2.3 Chapter formulation

In conclusion, after conducting a study on the items and components required to build this project, it was found that components with appropriate specifications should be used to curb any unwanted incidents or accidents. In addition, it is also very important that this component can save costs for this final year project as well as be able to add knowledge of the materials used for this project. In the meantime, this final project can be carried out smoothly without any difficult problems that cannot be solved.

Chapter 3

(MOHD DANIAL)

METADODOLOGY

3.1 Introduction

Methodology is a chapter that explain about the activity that we can solve any issues or problems. Choosing methodology to build a project is one of an important aspect to ensure that the project is build according to the right steps so it is systematic and tidy. With that, this chapter will explain regarding the steps that we must take to solve the “Emergency Hose Pump Tyre” problem. For more detail information about how its implementation, the methodology will shows in the form of flow chart.

The invention of “Emergency Hose Pump Tyre” is invented by ourselves based on our group suggestions and discussions. This innovation must be taken into account aspect and origin theory in making this hose pump. The design of the project must not be that difficult, lightweight and easy to carry. Choosing the component is base on some studies and tests in order to ensure the hose pump is functioning well and perfect. Therefore, the safety and comfort aspect also go in advance.

Gantt chart

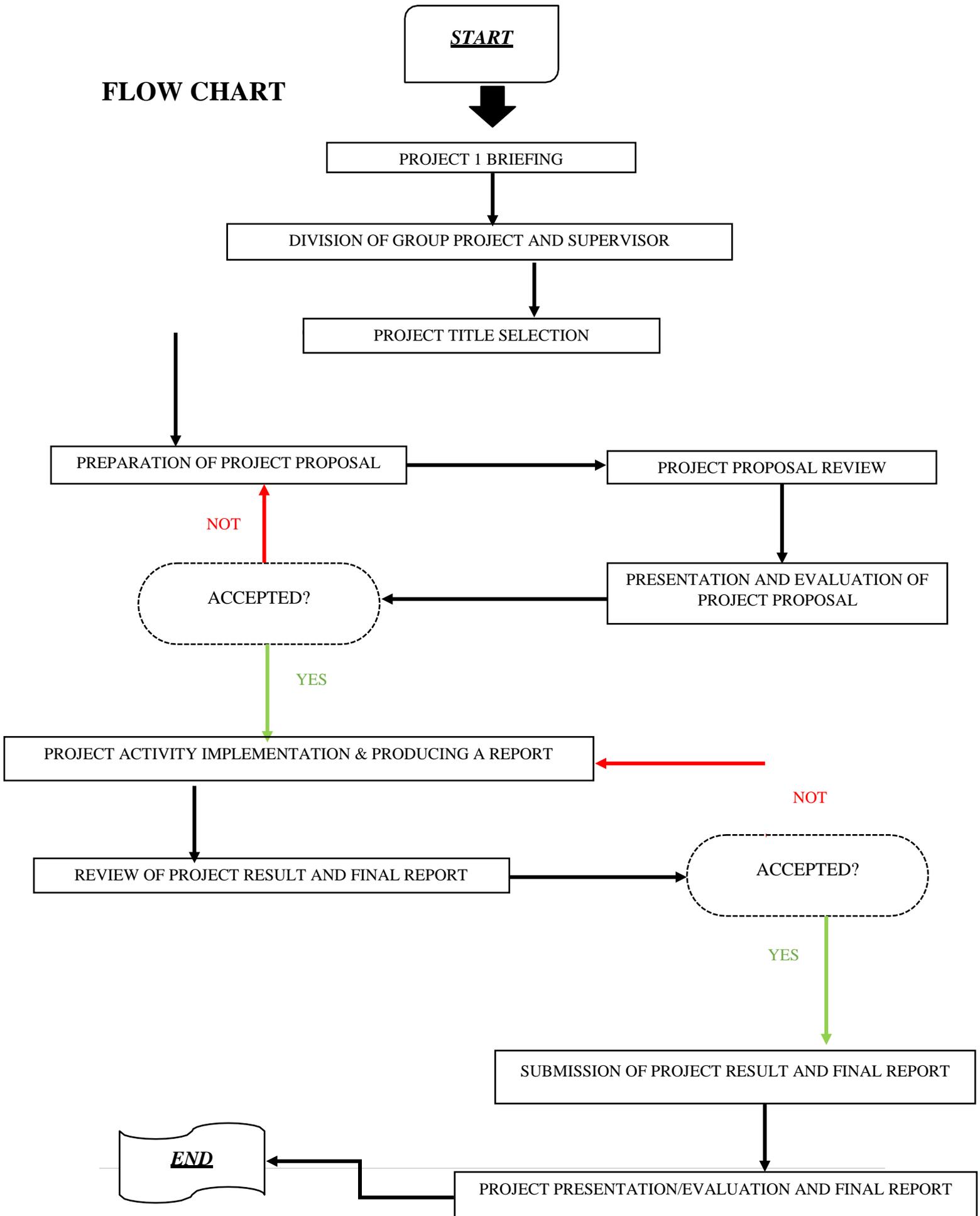
Planning / Activities	Mac				April				May				Jun	
	MK1	MK2	MK3	MK4	MK5	MK6	MK7	MK8	MK9	MK10	MK11	MK12	MK13	MK14
Project 1 briefing														
Division of groups and supervisors														
Preparation log book and														
Discussion on idea of project														
Project flow chart														
Project design														
Early submission of the project for evaluation														
Writing a Proposal (Introduction)														
Writing a Proposal (Literature view)														
Writing a Proposal (Methodology)														
Purchasing project materials														
Build a Prototype														
Make a project test														
Make any improvement														
Proposal presentation & Any correction that need														
Proposal submission														

Table 3.1.1

 Implementation date

 Planned date

FLOW CHART



PROJECT DESIGN

3.2 Project Design

A detailed drawing of the emergency hose pump tyre design will explain more clearly about the layout of the parts or components of the design this form. Even the location or place of each component on this hose pump can be identified based on the size of the component and the suitability of which component it is connected and placed. Here the initial design planning is done before the selection of the design is picked.

3.2.1 RAW SKETCH

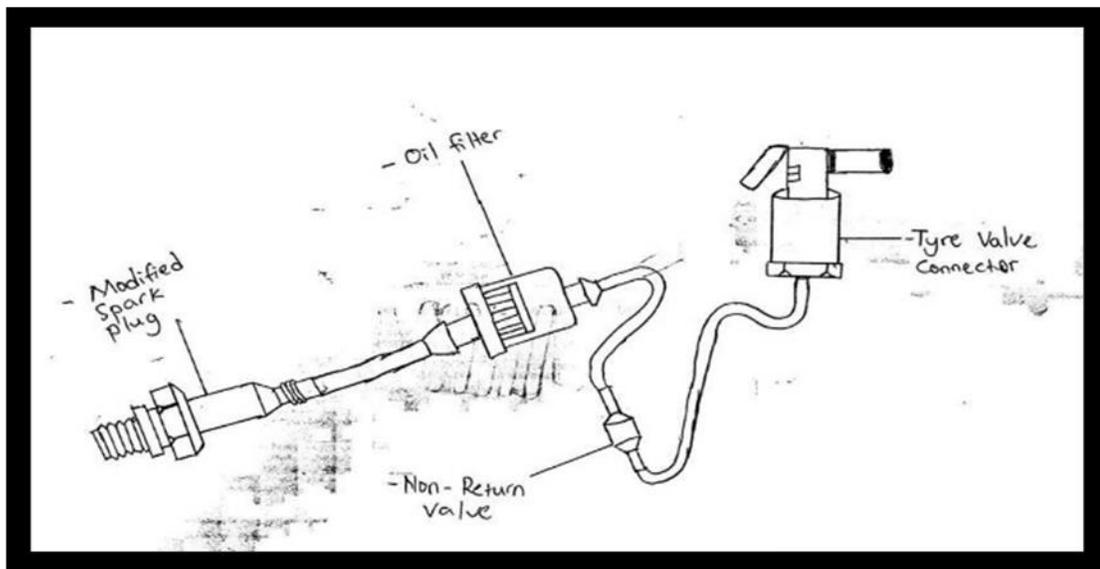


Diagram 3.2.1

3.2.2 FINAL DESIGN



Diagram 3.2.2

ADVANTAGE	DISADVANTAGE
. Easy to hold and lightweight	. Does not last long for a long period of time
. Portable	. Leakage could happen if not sealed correctly
. Low cost and eco friendly	. Only works on motorcycle

TYPE OF STUDY

3.2.3 DATA COLLECTION METHOD

The data collection required in this project was collected through websites, references from books and from data collection. Data collection from the results of a questionnaire made through “Google Form ”. Each information obtained must also be analyzed first so as to correspond to the method carried out.

Section A

Borang Soal Selidik Projek 1

Kami pelajar daripada Politeknik Sultan Salahuddin Abdul Aziz Shah dikehendaki untuk mengumpul maklumat orang umum mengenai masalah yang dihadapi dan kami akan cuba untuk hasilkan suatu produk yang boleh menyelesaikan masalah tersebut.

Produk yang kami akan cuba hasilkan adalah tertumpu kepada para penunggang motosikal dan produk tersebut bernama "EMERGENCY HOSE PUMP TYRE". Hal ini sedemikian, penunggang motosikal dapat mengisi angin didalam tayaranya ketika mana tayaranya kekurangan angin dan stesen minyak berada pada jarak yang jauh.

Bahagian A - Maklumat Responden

ARAHAN
Silakan tempat kosong dan Tandakan (✓) pada jawapan pilihan anda.

1) Jantina

- Lelaki
- Perempuan

2) Umur (Tahun)

- 12-18
- 19-25
- 26-30
- 30 DAN KE ATAS

3) Status pekerjaan

- Bekerja
- Belajar

4) Kenderaan yang digunakan

- Kereta
- Motosikal
- Kedua-dua

Next

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Section B

Bahagian B - Penyataan Masalah

ARAHAN
Sila membaca soalan dengan teliti dan pastikan setiap soalan dijawab .

Adakah setiap stesen minyak menyediakan pam tayar ?

Ya

Tidak

Adakah stesen minyak adalah satu destinasi bagi mereka yang ingin mengisi angin tayar kenderaan?

Ya

Tidak

Setiap kereta menyediakan tayar ganti yang dibawa kemana sahaja, manakala motosikal tidak boleh membawa tayar ganti bersama.

Ya

Tidak

Kami mencadangkan untuk menghasilkan produk "EMERGENCY HOSE TYRE PUMP" bagi penunggang motosikal kerana mudah dibawa dan juga mudah disimpan. Adakah pihak tuan/puan berminat dengan produk ini?

Ya

Tidak

Sekiranya tuan/puan mempunyai idea bagi penambahbaikan. Boleh tuan/puan mencadangkan penambahbaikan tersebut?

Your answer _____

Untuk perjalanan yang jauh adakah jarak stesen minyak antara stesen minyak yang lain adalah jauh ?

Ya

Tidak

Adakah kehilangan angin pada tayar boleh menyebabkan hilang kawalan(lost control)?

Ya

Tidak

Kami mencadangkan untuk menghasilkan produk "EMERGENCY HOSE TYRE PUMP" bagi penunggang motosikal kerana mudah dibawa dan juga mudah disimpan. Adakah pihak tuan/puan berminat dengan produk ini?

Ya

Tidak

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3.2.4 RESEARCH INSTRUMENT

Here are the tools used in this project:

1. PTFE Pipe thread tape



The most common “PTFE Pipe thread tape” or “plumbers' tape” which is usually used in plumbing applications on pipes, tubes, or act as a lubricating seal tape to prevent water and air from leakage.

2. Scissor



Scissors are a basic tools. A pair of scissors consists of two pair of metal blades pivoted so that the edges slide against each other when the handles are closed.

3. Electrical Tape



Electrical tape is a black tape, used to insulate wires that can conduct electricity. It comes in a variety of colours, it is purposely made to have a lot of colour because each colour has a purpose. Black is generally used for insulating electrical wire. It is also used to secure items just like a regular tape.

4. Spark plug opener/Socket wrench



The most important tool is a spark plug socket. Spark plug sockets come in two sizes which is $\frac{5}{8}$ and $\frac{13}{16}$ inches. Most aftermarket spark plug sockets have a rubber insert that holds the plug in place.

3.3 CHAPTER FORMULATION

In a nutshell, methodology is important when it comes to building a project because it explains how the project will be done and we can refer the mistake that should be fix from our methodology. It can also help us to build the project correctly according to the right steps.

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CHAPTER 4

(MOHD DANIAL)

PRELIMINARY INVESTIGATION OF THE STUDY

4.1 INTRODUCTION

After all the data and the information are obtained, analysis need to be done to see the reaction of user of this product. The results obtained in this chapter are the results obtained from the online questionnaire which is made by using google form. The data obtained from this online questionnaire are analyzed in more detail to get conclusions based on the objectives of the study that have been stated. The study was conducted by using respondents who have filled in the online questionnaire. There are several aspects that are the main focus, namely:

1. Profile of respondent (gender, work status and age)
2. Respondent perspective on petrol station
 - Petrol station facilities
 - Reason why respondent need petrol station
3. Respondent perspective on questionnaire

4.2.1 DEMOGRAPHIC PROFILE OF RESPONDENT

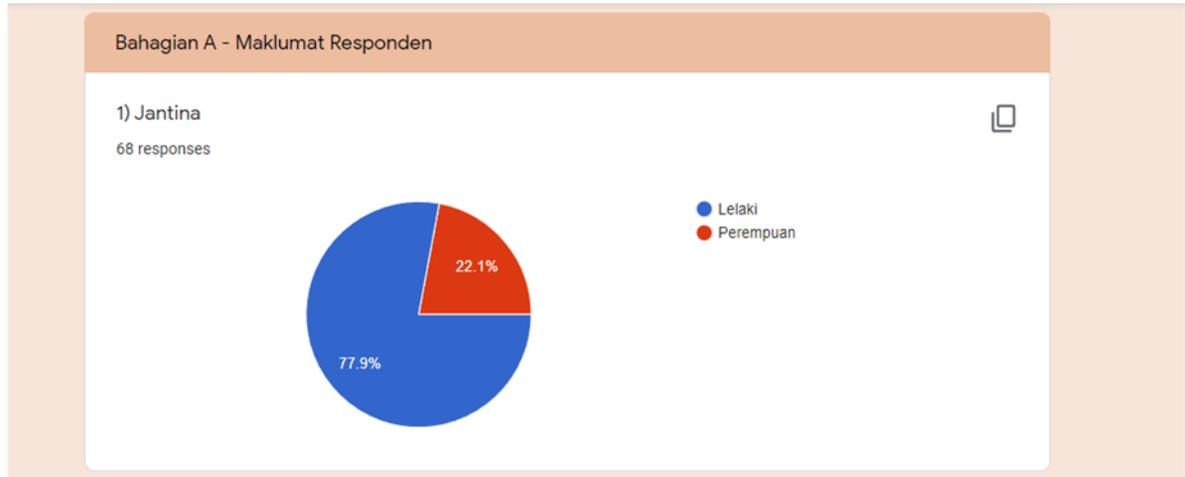


Diagram 4.2.1 Respondent gender

Diagram 4.2.1 show that the percentage of respondent gender that give respond for this project. 77.9% of the respondent are man while 22.1% of the respondent are women. The percentage for the man is the highest because tyre pump are usually use by man rather than women.

4.2.2 RESPONDENT AGE

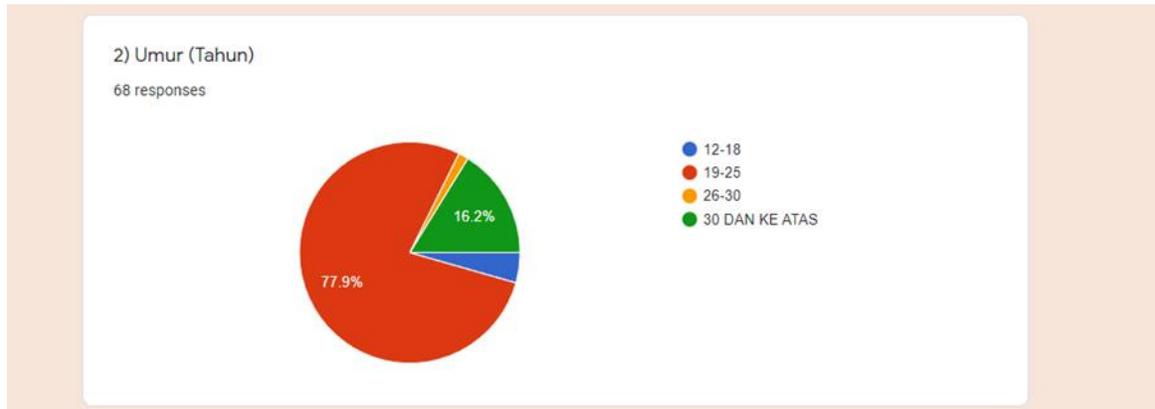


Diagram 4.2.2 Respondent age

Diagram 4.2.2 shows that the percentage of the age of our respondent. The diagram shows that 77.9% are 19 to 25 years old, 16.2% are 30 years and above, 12 to 16 years old and 26 to 30 years old from highest to the lowest percentage respectively. Age 19 to 25 years old is the highest because most of the respondent are from students who is taking diploma in mechanical engineering.

4.2.3 WORK STATUS

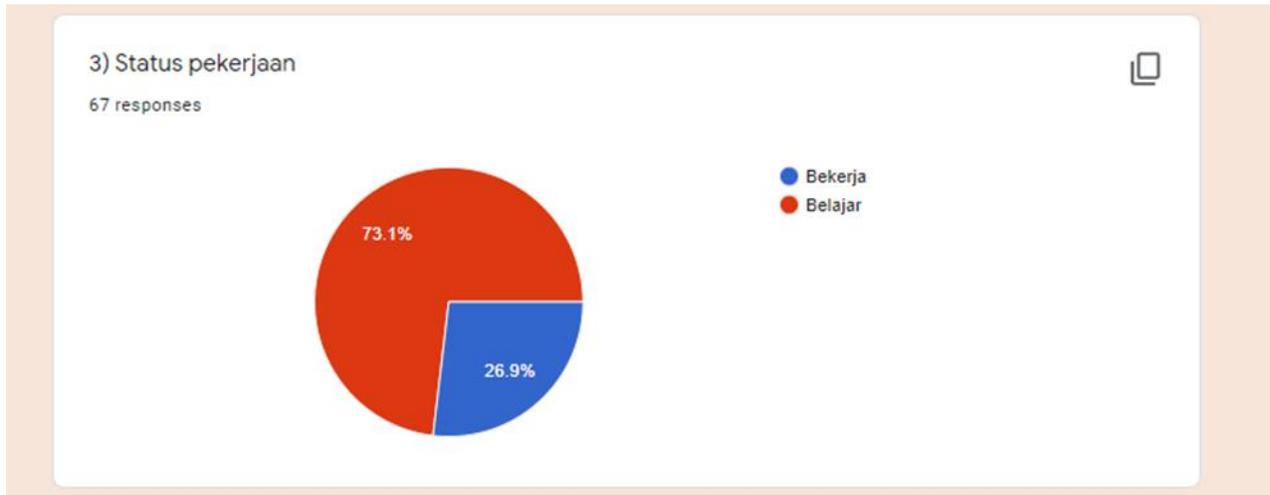


Diagram 4.2.3 Respondent work status

Diagram 4.2.3 shows that the work status from our respondent of the google form. The total of 73.1% of the respondent are students. This is because most of the students are from universities or students who are taking diploma in mechanical engineering. Next, the remaining total of 26.9% are respondent that are working.

4.2.4 TRANSPORTATION USED

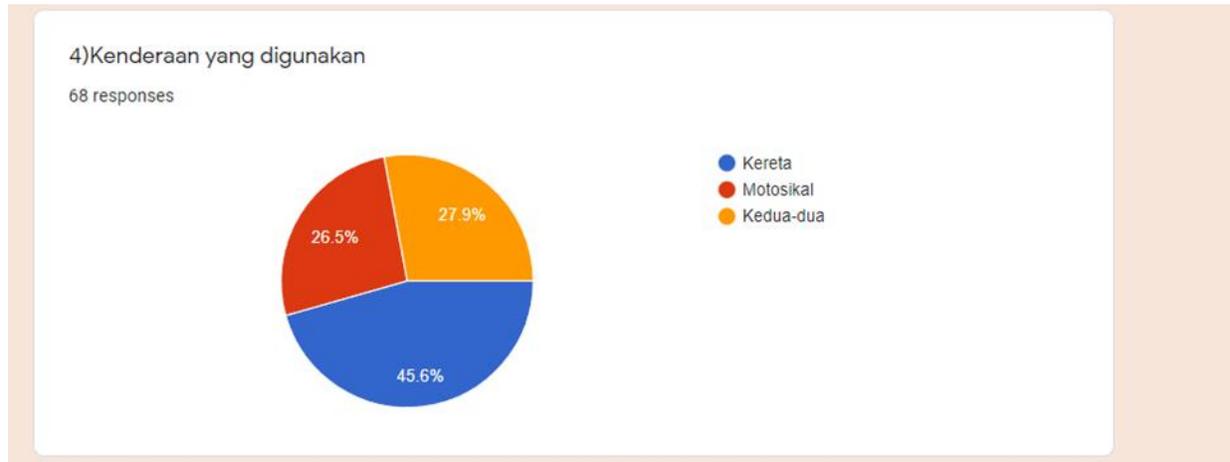


Diagram 4.2.4 Respondent of transportation used

Diagram 4.2.4 shows the types of transportation that our respondent are using. From the diagram above, the highest category is car which is 45.6%. Next is 27.9% which is respondent who are using both transportation which is cars and motorcycle. Lastly, the lowest percentage in this chart is 25.5% which is motorcycle. This is due to the weather in our country which often change.

4.2.5 DOES EVERY PETROL STATION OFFER TYRE PUMP



Diagram 4.2.5 Respondent thought on pump station facilities

Diagram 4.2.5 shows that 76.5% respondent agrees that every petrol station provide tyre pump. Next 23.5% shows that respondent doesn't agree that every petrol station do provide tyre pump.

4.2.6 MAIN REASON WHY RESPONDENT GOES TO PETROL STATION



Diagram 4.2.6 Respondent main reason why they goes to petrol station

Diagram 4.2.6 shows that most of the respondent goes to the petrol station to pump their tyre as much as 82.4% however, 17.6% does not agree that their main reason to go to petrol station is to pump their tyre.

4.2.7 IS PETROL STATION FAR FROM EACH OTHER?



Diagram 4.2.7 Respondent respond toward petrol distance

Diagram 4.2.7 shows that 76.5% of respondent agree that petrol station is too far from each other and 23.5% respondent does not agree that petrol station is too far from each other.

4.2.8 DOES LOW TIRE PRESSURE CAN CAUSE ACCIDENT



Diagram 4.2.8 Respondent opinion toward low tire pressure

Diagram 4.2.8 shows that more than 90 percent of respondent agree that low tire pressure could cause accident

4.2.9 CAN EMERGENCY HOSE TYRE PUMP SOLVE THE PROBLEM



Diagram 4.2.9 Percentage of respondent agrees or disagree

Diagram 4.2.9 shows that 97.1% says yes that emergency hose tyre pump can solve their problem. However 2.9% says that emergency could not solve their problem

4.3 SUMMARY

In a nutshell, the respondent respond is really good and fast. Respondent replies are also important in order to have a successful project because their perspective can help us achieve the perfect project and also help us to fulfill some shortage that are lack in our project.

CHAPTER 5

(ABANG MOHD SUFYAN)

CONCLUSION AND SUGGESTION

5.1 INTRODUCTION

Our project objectives is mainly to help motorcycle riders to overcome their normal problem that is low tyre pressure in the middle of the road. As we all know, on the road, there will be some uneven road and even pot holes which can be one of the reason for the tyre to lose pressure when they encounter this kind of road condition. It can also be troublesome and dangerous to ride a motorcycle with low tyre pressure because as it will affect the handling of the motorcycle greatly. It is also troublesome to bring a big and bulky pump on the ride because it will consume too much space that will affect the items that the riders can bring in their backpack. These problems is the main cause why we get the idea to invent our product that is Emergency Hose Tyre Pump that is easy to use at anywhere and small in size.

5.2 DISCUSSION

In addition, our product Emergency Hose Tyre Pump have its own unique criteria and design. Furthermore, this project has proven to be able to overcome the problem faced by riders today, especially long-distance rider. However, this project will need to have some modification in the form of sizing and shaping. The functionality and practicality to be brought are the main aspect that need to be inspected and improve in the project.

Moreover, the level of effectiveness of this Emergency Hose Tyre Pump is very satisfactory to the users in every aspect especially its functionality and practicality. In fact, this Emergency Hose Tyre Pump is very reliable and it is quite hard for it not functioning well and it is easy to be repaired in case of any parts failed because most of the parts is only 'plug and play'.

Our Emergency Hose Tyre Pump has been tested several times with our own motorcycle. Our testing result is we sure that our pump can definitely pump air into the tyre as long as the size of the tyre is not too big. We can make a conclusion that our pump is specially made and

can be used by only moped because moped usually does not use a big size of tyre. Each member of our group is involved with the testing process of the product. We got a very satisfying results.

5.3 SUGGESTION

Like the germination of mind, recommend strategies for the purpose of improving and strengthening the overall project. There have been some improvement and listing of new ideas that we have come up, based on the research we have done. All the improvements of the existing study will try to be improved and will try to be utilized from time to time to produce a tyre pump that has its own position and able to solve the problem of each rider.

Here are some things to suggest further enhance the study to be done on tyre pump to find out its level of effectiveness:-

Firstly, we can add a tool to the Emergency Hose Tyre Pump that is a pressure regulator so that the rider can inspect the tyre pressure so that the riders can pump their tyre to the desired pressure immediately so they will not have to go to any nearest petrol station to get the desired tyre pressure.

Secondly, we can make the pump into a suitable sizing and shape so that the pump can be put anywhere on the motorcycle that will not interfere the rider. Some issues that most rider faced the reason they do not want to bring any air pump is because the size of the pump will consume space in their backpack. With this, they will have to leave some of their items just to bring the pump. So, it is very convenient if the Emergency Hose Tyre Pump can be brought anywhere by just left it anywhere at motorcycle that will not interfere the rider.

Lastly, we can make a reservoir at the pump to store air so it can be easier to pump the tyre. By making a reservoir at the pump, it can help the rider in the process of pumping the tyre because the air stored inside the reservoir can help increase the pressure that will go into the tyre. With this, rider did not only rely on the air flow from motorcycle engine but, the riders can also get air from the reservoir to be pump into the tyre.

5.4 CONCLUSION

In conclusion, there was several aspect need to point in inventing a new creation or project. This is important because it can help in the sale of products that can solve consumer problems. According to the problem statement, there were several objectives states for this project. We were able to pump the tyre a little bit so that the riders will be able to at least get to the petrol station to get the desired tyre pressure. The riders also would not need to bring big and bulky pump with them and this shows that our product has a very big potential in the market nowadays.

Besides that, our product does not need any electricity or battery to use it. It can be used anytime and anywhere. What we must do is just plug in our product at the spark plug slot at the motorcycle and kick start the motorcycle. Although there were many shortcomings and weakness identified, but the objectives for this project were successfully achieve.

5.5 SUMMARY

In summary, the approach used in this project is very important in completing our project. Parts used in the project is hard, not easy to be tear and heavy duty. Furthermore, the user can consider the project is a life-saving tools in case of emergency in the middle of the road. Hereby, we believe that this pump is very beneficial for long-distance rider, city rider and delivery rider when they encounter low tyre pressure problem.

5.4 REFERENCE

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