

DECLARATION FORM

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“Telescopic Ladder”

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APPRECIATION

Thanks be to Allah for the grace bestowed on this dwarven servant. Salutations and greetings of the great Nabi Muhammad and his companions.

This award goes to our parents for their prayers and blessings during our stay here. They always pray for us and support our efforts in producing this work.

Next to our lecturer and supervisor, Mrs. Enarneyaney Binti Ibrahim, for many guidance in completing this important task. She is always on the lookout and keeps us up to date with new things so we don't miss out. May every good service and commitment he gives be rewarded with every kindness from Allah w.b.t.

I would also like to dedicate a thank you note to a team of colleagues who have worked hard to produce this product. Hoping that what we produce is worth the effort.

Before we forget, we would like to thank everyone involved in this project directly or indirectly.

ABSTRACT

This paper is an overview on the investigation of ladder. Ladder is one of the important equipment, especially for workers either outdoor and indoor. In this study, existing ladder is typically use the straight and seem unsafe. That is why Telescopic Ladder was created for make anything went better. Telescopic Ladder is a innovation from another ladder which is this ladder can compact down for easy storage . This ladder also can easily move using flexible wheel . This type of wheel can be lock to stay the ladder from not moving . This ladder are easily use for individual because it does not need other person for help . So that this ladder is totally save for anyone . The important thing is, this ladder made by aluminium alloy. This kind of aluminium is for make that ladder still strong even though people on it. Besides, this aluminum make the ladder a bit superficial. Telescopic Ladder can stand until 150 kg the burden of human weight. The leg is also made by aluminium because the factor of being strong and safe. The wheel can turn to 360° round to make that ladder move easily. This Telescopic Ladder can make an improvement in of term safety and convenience for users.

ABSTRAK

Kertas kerja ini adalah gambaran keseluruhan mengenai penyiasatan tentang tangga. Tangga adalah salah satu peralatan penting, terutama bagi pekerja sama ada di luar dan di dalam bangunan. Dalam kajian ini, tangga yang ada biasanya hanya berbentuk lurus dan kelihatan tidak selamat. Itulah sebabnya Telescopic Ladder dicipta untuk membuat sesuatu menjadi lebih baik. Telescopic Ladder adalah inovasi dari tangga lain yang tangga ini dapat dikompilkan untuk simpanan mudah. Tangga ini juga boleh bergerak dengan mudah menggunakan roda fleksibel. Jenis roda ini boleh dikunci untuk mengelakkan tangga daripada bergerak. Tangga ini mudah digunakan untuk individu kerana ia tidak memerlukan orang lain untuk mendapatkan bantuan. Jadi tangga ini benar-benar selamat untuk sesiapa sahaja. Yang penting, tangga ini dibuat oleh aloi aluminium. Aluminium ini adalah untuk membuat tangga itu masih kuat walaupun ada orang di atasnya. Selain itu, aluminium ini membuat tangga sedikit dangkal. Telescopic Ladder boleh berdiri sehingga 150 kg beban berat manusia. Kaki ini juga dibuat oleh aluminium kerana faktor menjadi kuat dan selamat. Roda boleh bertukar kepada pusingan 360° untuk menjadikan tangga itu mudah bergerak. Telescopic Ladder ini boleh meningkatkan keselamatan jangka panjang dan kemudahan pengguna.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

In each housing has its own design and equipment that requires the use of ladder to facilitate work, example, fan installation, air conditioning, roof installation and painting of the house. The ladder used should be in accordance with the requirements of the work space, therefore the selection of ladder size and height of ladder is important in selecting the ladder because there is no ladder that measures more or less height according to the size of the workspace.

A Consumer Product Safety Commission (CPSC) report on ladder safety showed some startling statistics concerning the frequency and severity of ladder related accidents in the United States. Every year, thousands of people are injured and hundreds are killed. More than 90,000 people receive emergency room treatment from ladder injuries every year. The news reported that the real life series of events that led to the death of a 33 years old construction worker from a ladder fall (NIOSH 2014). Repairing and installing home appliances requires a stable ladders to prevent injuries such as broken limbs that occur in cargo work being ridden to Klang Hospital.

Therefore, ladder stability plays an important role in supporting the work done. The non permanent ladder is a ladder that can be moved and can be placed anywhere. Non-permanent ladder themselves are widely known and are sold in folding ladder and straight ladder are most often preferred. There are many types of ladder such as Rigid Ladder which is are made from hard materials for strength and durability. Next, Flexible Ladder which has been

designed for climbing curved surfaces. Another types is Boarding Ladder can be use on the sides of boats and aquatic vehicle and the last is Assault Ladder which is has a very strong stability.



Figure 1.1



Figure 1.2

1.2 RESEARCH BACKGROUND

No one really knows when the ladder was invented. However, the earliest evidence of it is located in Valencia, Spain. The Spider Caves have a Mesolithic rock painting of a ladder that's about 10,000 years old. This painting shows two men using a ladder to access a wild honeybee nest, most likely to get honey. The painting shows a flexible ladder that was made up of some kind of grass. While this is the first evidence of the ladder, most researchers are certain it is much older than that. The roots of the functional design of ladders as we know them today, can be traced right back to the ancient Hebrew and Egyptian cultures; these are the civilizations that developed and perfected it. Over the years, different kinds of ladders have been created to suit different purposes.



Figure 1.3

For our idea project was come from the telescope where this is a tool that astronomers use to see faraway objects. To use this telescope we need to adjust the right position and right direction. So, for the Telescopic Ladder we just need to adjust the right height for our purpose. This ladder can be compact down to 86 cm for easy storage. And we also take the trolley wheel as one of the idea to make the ladder easily move. The wheel can easily move in any direction or 360° without any obstacle. The wheel also have the unlock system which is can lock the wheel if we want to climb the ladder.



Figure 1.4

1.3 PROBLEM STATEMENTS

1.3.1 Selecting the unsuitable type of ladder

Why do workers fall from ladder? Most fall happen because workers select the wrong type of ladder for their job or they set up the ladder improperly and the ladder shifts or slips unexpectedly. Workers also fall when they are not working safely on the ladder. Like most other jobs, choosing the right tool can make all the difference when it comes to safety and this is the same fro ladder. One thing to consider when selecting an appropriate ladder is the ladder's weight capacity. Each ladder is designed to support a maximum weight limit and if the climber exceeds that limit the ladder could break and cause the user to fall or become injured.



Figure 1.5

1.3.2 Incorrect placement of ladders

In the assembly and repair work as well as home improvements, usually using a ladder as a way to help to reach the limits of human height, for example installation of air conditioners. However, the house has an uneven surface and different heights. Stairs lead to less stability and can cause the user to fall off the ladder and cause injuries such as fractures of the spine. Make sure that when positioning a ladder, the ground you place it on is level and firm. Ladder should never be placed in front of a door that is not locked, blocked, or guarded. A good practice to ensure a ladder is secure is to always have a helper support the base while a ladder is being used. If the ladder can not be held by someone else, make sure it has an appropriate



Figure 1.6

1.4 OBJECTIVES

1.4.1 To innovate a more compact ladder for easy portability and storage.

The Telescopic Ladder that we innovate can easy portability on flat surface. The new innovation that we created was using a flexible wheel for each side. The main function of flexible wheel is for easy portability which is we can move the ladder in every direction. The wheel can easily move to 360^0 , so the consumer can easily handle this ladder without using to much energy for lift up the ladder. The flexible wheel are also used for easy storage. Just unlock the wheel and push the ladder to your storage without lifting the ladder. No need to use to much energy for using this ladder because this ladder was very easy to control. We can minimize the size of ladder until 86 cm, so we can keep this ladder in small space without worried about the size of ladder. The consumer do not have to think of a spacious space to store the ladder. If the consumer want to store the ladder under the bed it is also possible because the ladder was only 86 cm length if the ladder was laid down.

1.5 SCOPE

1.5.1 Consumer

For this scope we focus on contractors, maintenance workers and household because the function of this ladder. As contractors they used ladder for climbing purposes such as install roof, paint and so on. For maintenance workers, they used ladder to do their works such as install or repair the air conditioning system, wiring and so on. And for the household, they usually used the ladder for their purposes such as cleaning fan, wiping windows, installing curtains and so on.

1.5.2 Place

These ladder can be used indoors or outdoors according to the needs of the consumer. This ladder can be used outdoors regardless of the weather because the material used to produce it is from aluminium alloy which is this material are stainless. While in indoors, this ladder can be used without having to worry about its height because this ladder are using the standard height of house.

1.5.3 Height

The height of this ladder can be adjusted to the consumer's desired height up to a maximum height of 2.50 m.

1.6 SIGNIFICANCE OF STUDY

1.6.1 To The Customers

This ladder is one of the product of innovation that can be among the consumer's choice compared to the existing ladder in the market where it has the advantages of storage and portability. These ladder are ideal for those who need stairs that can easily move from one place to another.

1.6.2 To The Academicians

As to the academic purposes, there are valuable input revealed based on the study findings which can help academicians to get information, knowledge and skill.

1.7 TERMS DEFINITION

The word Telescopic Ladder is taken up from the idea of using an adjustable telescope. This ladder can be adjusted using the safety locking mechanism which same as telescope.

1.8 CONCLUSION

As the conclusion, we conclude that through this project, we can identify the problems of using ladder and disadvantages of the ladder on market. The ladder that we innovate can be the most simple to use and easy portability. The innovation that we produce can reduce the problems where the workers face. This ladder also can save consumers time because its easy to control and easy to bring any where.

CHAPTER 2

LITERITURE RIVIEW

2.1 INTRODUCTION

Published articles, journals and books were collected to investigate the theories and find the real problems of using ladder. This chapter discuss on other people's opinions and their research. The content of literature review would include incidents during using ladder, disadvantages of ladder, problems of using ladder. The previous research also include in this chapter 2.

2.2 THEORY

A ladder is a vertical or inclined set of rungs or steps. There are two types rigid ladders that are self supporting or that may be leaned against a vertical surface such as a wall and rollable ladders such as those made of rope or aluminium that may be hung from the top. Rigid ladders are usually portable but some types are permanently fixed to a structure, building or equipment. Rigid ladders are available in many forms such as Accommodation ladder are portable steps down the side of a ship for boarding. Dissipative ladders are portable ladders built to ESD (Electrostatic Discharge) standard. Electrostatic Discharge is a natural occurrence in which electricity is passed through the body or other conductors and discharges onto some object. Boarding and pool ladders also used on the side of a boat to climb into it from the water and in a swimming pool.

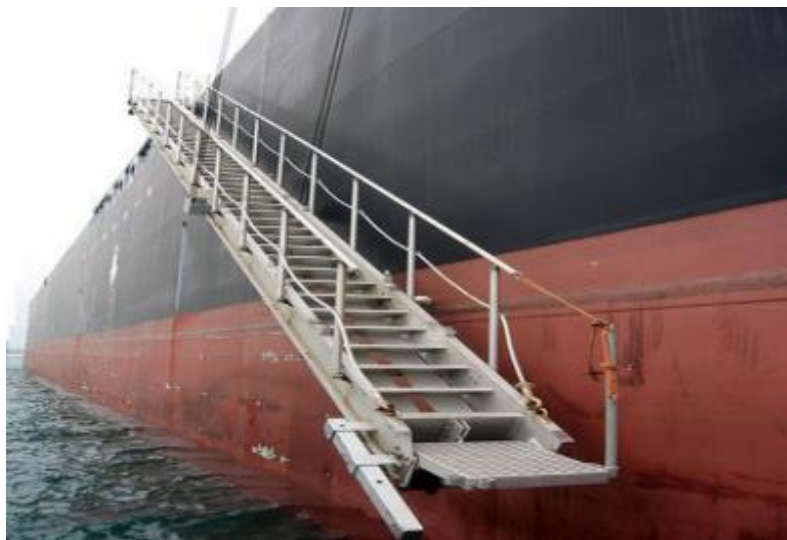


Figure 2.1 Accommodation Ladder



Figure 2.2 Dissipative Ladder



Figure 2.3 Boarding and Pool Ladder

2.3 PREVIOUS RESEARCH

2.3.1 Extension Ladder Safety

Falls from ladders are the second leading cause for work-related fatalities in the US construction industry. A significant portion of these incidents occurs at building-construction-and-maintenance worksites during the use of extension ladders. This paper presents the results of a critical literature review related to risk factors associated with falls from extension ladders, practical engineering solutions that may reduce fall-from-extension-ladder incidents, and questions pertaining to ladder safety that remain unanswered. The review results show that the underlying causes of falls involving extension ladders include the ladder-base slipping out, ladders tipping, workers slipping while on ladders or transitioning from a ladder to a surface at height, and mechanical failures. (International Journal of Industrial Ergonomics, 2008)

2.3.2 Types Material of Ladder

Materials with a ribbon or ladder type framework possess a two dimensional geometry and are thus intermediate between linear and three dimensional systems. The limited conformational freedom of ladder polymers is particularly relevant in the case of conjugated ladder type materials since the steric inhibition of electron delocalization is drastically reduced.

Up until today two general routes have been used to prepare ladder type materials the polymerisation of multifunctional monomers, in which both strands of the ladder structure are generated in a single reaction and the cyclisation of suitably functionalized open chain (single-stranded) precursor polymers in a polymer analogous process. Both strategies pre-suppose certain essentials to arrive at structurally defined ladder polymers, especially the exclusion of side-reactions and an almost quantitative conversion of the starting materials.

2.3.3 Aluminium Alloy

An aluminum alloy is a chemical composition where other elements are added to pure aluminum in order to enhance its properties, primarily to increase its strength. These other elements include iron, silicon, copper, magnesium, manganese and zinc at levels that combined may make up as much as 15 percent of the alloy by weight. Over the last 10 years there has been an increasing trend to replace copper heat exchangers with ones manufactured from brazed aluminium. Hoogovens Aluminium Walzprodukte Koblenz is one of the world's leading supplier of aluminium brazing sheet and is in the forefront of developing alloys with the combination of strength, formability, brazing performance and long life required by its customers (Materials Science and Engineering, 2000).

2.4 CONCLUSION

As the conclusion, we can conclude that through the study we can identify and investigate the suitable material for the best ladder. There are many types of ladder in market that are not yet for all purposes.

CHAPTER 3

METHODOLOGI

3.1 INTRODUCTION

Research methodology is used by researchers for collecting and analysing data that will be used for answering the hypothesis and questions in a more systematic way. This chapter is mainly to describe the flow of project that was done as planned. Method, material and flow of the project were explained briefly in this chapter. The objective of is to innovate a more compact ladder foe easy portability.

3.2 RESEARCH DESIGN

Research design is defined as a framework of methods and techniques chosen by a researcher to combine various components of research in a reasonably logical manner so that the research problem is efficiently handled. It provides insights about “how” to conduct research using a particular methodology. A research design is a clear objective derived from the research question, determination and statement of the general research approach or strategy adopted for the particular project. This study started by identifying materials and design.

3.3 DATA COLLECTION METHOD

Data collection is meant by just simply collect the data required for the research and there are two types of data which are primary data and secondary data. Data collected will help to achieve research objectives. Besides that, by collecting data it will provide clearer view and help researches to have better understanding. Data preparation is a process of analysing, summarizing and concluding the information gained for the research project purposes. Data collection usually implemented early for project improving purposes and will be simplified and formalized. The procedure is as follow :

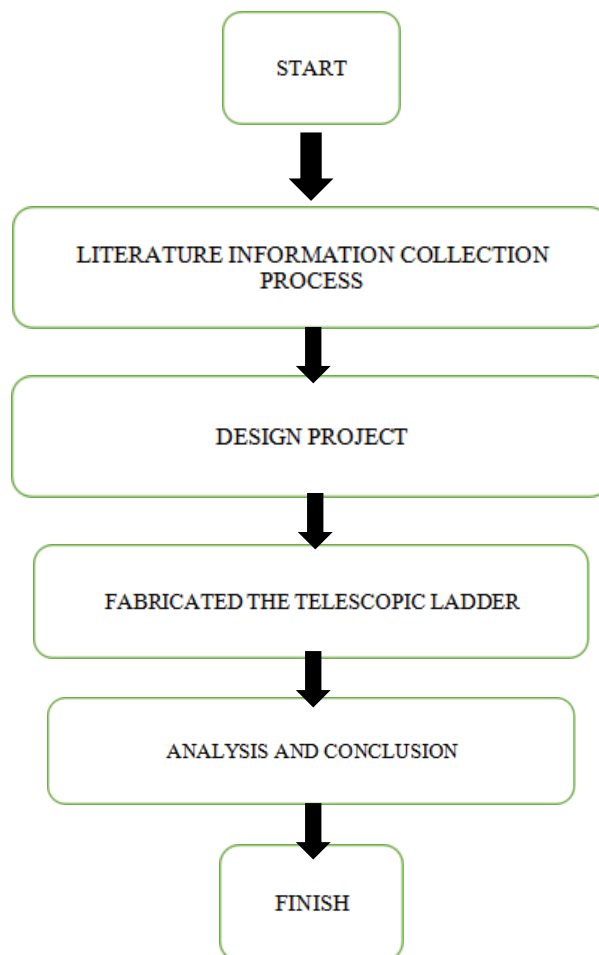


Table 3.1

3.3.1 Primary Data

Primary data collection strategy is the experiment. In an experiment, the researchers manipulate one or more independent variables following objective characteristics of a population. The major methodological problems in interview surveys are obtaining a representative sample and the validity of the response given by the respondents. Obtaining a representative sample is usually accomplished by drawing a random sample from the population, using scientific sampling methods. In addition, both respondent and question characteristics can affect the response. To ensure valid response, interview questions must be carefully designed, evaluated and tested (Joop J. Hox & Hennie R. Boeije, 2005).

3.3.2 Secondary Data

For some social research questions, it is possible to use data collected earlier by other researchers or for other purposes than research, such as official statistics, administrative records, or other accounts kept routinely by organizations. By virtue of being archived and made available, any type of primary data can serve as secondary data. Using secondary data presents researchers with a number of characteristics problems. First, researchers must locate data sources that may be useful given their own research problem. Second, they must be able to retrieve the relevant data. Third, it is important to evaluate how well the data meet the quality requirements of the current research and the methodological criteria of good scientific practice (Joop J. Hox & Hennie R. Boeije, 2005).

3.4 RESEARCH INSTRUMENTS

The research instruments used in this research self-administered questionnaires. A self-questionnaire was a data collection in which the respondents read the survey question and recorded his or her own answer without the present of a trainer interview (Hair, Black, Babin, Anderson & Tatham, 2006). Questionnaire serves as an important tool to generate response from the respondents because it was a cheaper way to gather data from potentially greater amount respondents.

3.5 SAMPLING TECHNIQUES

A sample is a finite part of statistical population whose properties are studied to gain information about the whole (Webster, 1985). Sampling is an act, process and technique of selecting a suitable sample, for representative part of a population for determining parameters or characteristics of whole population. The population of this study consists of contractors, households and maintenance workers in TTDI Jaya.

3.6 DATA ANALYSIS METHOD

Data analysis is the process of systematically applying statistical and logical techniques to describe and illustrate, condense and recap the evaluate data. According to Shamoo and Resnik (2003), various and analytic procedures provides a way of drawing inductive inferences from data and distinguishing the signal from noise present in the data. The data will be measured or identified through statistical, mathematical or computational techniques. Afterwards, the result will be shown by using pie chart.

3.7 CONCLUSION

This chapter described the method that used to conduct this research, the research methodologies include collecting, analysing and interpreting data. Purposive samplings used to select the respondents for the 28 questionnaires given out to obtain more accurate information from the respondents. In addition, this chapter has provided the detailed structure and flow to product this research in term of the research design, data collection method, research instruments, sampling design and data analysis.

CHAPTER 4

ANALYSIS AND RESULTS

4.1 INTRODUCTION

This chapter presents the results of the research obtained through the questionnaire instrument surveys and written tests conducted on a group of respondents targeted. The findings of this study were analyzed with descriptions for viewing frequency, percent and mean for each part of the instrument to reach decision on the objectives of the study outlined. The findings of this study also presented easily and clearly and displayed in tables and graphs to facilitate better understanding and interpretation. Investigator describes the analysis of data and information obtained through this study in accordance with the objectives of the study as set out in the preceding chapter. The following are the instrument items used in this study to answer research questions submitted.

4.2

QUESTIONNAIRE

The questionnaire was randomly administered to 30 respondents at among target groups of contractor, maintenance workers and households who usually used the ladder frequently.

The findings from this survey include two types of data, namely data quantitative and qualitative data.

Quantitative data is the data obtained from multiple choice responses answers and likert scales used in the questionnaire items. This group data will be analyzed using *Statistic Package for the Social Science (SPSS)* for descriptions in the form of frequency, percent plus min.

According to Mohd Majid (1990), descriptive statistics are organizational and summary of data obtained from data processing. The surgery can be in the form of tables, illustrations in diagrams or graphs of data or information.

The researchers used the same respondents in the questionnaire instrument, which is around contractors, maintenance workers and household in TTDI Jaya, Shah Alam.

The number of respondents taking part in this questionnaire is a total of 28 randomly selected people. This instrument is intended identify people opinion about ladder that already exist including the facilities. The findings of this instrument are in the form quantitative and qualitative data analyzed in the form of tables and charts histogram taking into account the frequency and percent values. This writing test instrument covers 2 main sections namely :

- a) Part I : Respondent's personal information
- b) Part II : Knowledge of basic concepts

By conducting the assessment of the instrument into a group participating in this study, researchers were able to collect data either in the form of data namely quantitative and qualitative data. The findings of this study are in line with the objectives. Here's the one example shows the findings of the study outlined.

Table 4.1 : Distribution of Response to Study Objectives in the Study Instrument

Part I

1. Gender : [X] Male [] Female

2. Age : 19 year's old

Part II

1 – Strongly disagree 3 – Natural 5 – Strongly agree

2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?				√	
2	Ladder are one of the most important requirements.					√
3	The ladder that already exist make it difficult to move because of the large size.					√
4	Is it difficult for you to keep ladder in a restricted space?				√	
5	Ladder that already exist are very easy to carry.		√			
6	Existing ladder are safely used in slippery areas.		√			
7	Existing ladder are safe for use in sloping areas.		√			
8	Existing ladder are easy to operate.		√			
9	What do you think if we innovate from existing ladder?					√
10	When using the ladder, the risk for accidents is high.					√
11	Is it easy for you to take this innovative ladder?				√	
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?					√

Table 4.1 above shows the portion of the assessment items contained the research instrument, questionnaire and written test used to measure the response with the objective of the original study.

4.3 FINDINGS

The researchers present the findings by summarizing the data information obtained from studies conducted to achieve that target set in the study objectives.

4.4 FINDINGS OF RESPONDENT'S PERSONAL INFORMATION

There were three groups of respondents, contractor, maintenance workers and household involved as a reference to the instrument used in this study, namely the respondent questionnaire and written test respondents.

4.4.1 Findings of Respondent's Personal Information

There are 28 person that already answer this type of questionnaire around TTDI Jaya, Shah Alam. We as researcher collect respondent's personal information such as gender and age. Besides, we also collect about their reaction to ladder that already exist and about our idea for renovation.

This questionnaire include contractors, maintenance workers and household. We take the respond from three of them, which is 8 from contractors, 10 from maintenance workers and 10 from household. For gender and age, we took it randomly to make the result look fair because this type of ladder is universal. Table 4.2 show sample size distribution used in this research study according to this 3 category.

Table 4.2 : Number of Person and Sample

No. of Question	Scale					Percentage for Strongly Agree, 5 (%)
	1	2	3	4	5	
1	0	2	6	11	9	2.52
2	0	0	3	17	8	2.24
3	0	1	8	9	10	2.80
4	0	1	3	13	11	3.08
5	2	12	12	2	0	0.00
6	1	15	11	0	1	0.28
7	6	12	10	0	0	0.00
8	1	7	16	4	0	0.00
9	0	0	5	12	11	3.08
10	0	0	4	11	13	3.64
11	0	0	7	12	9	2.52
12	0	0	5	12	11	3.08

(refer Table 4.1)

Referring to Table 4.2, most respondent had the same opinion on certain questions. Percentages above only shows a scale of strongly agree because from that, we can improved our product. Table 4.2 also shows all of 28 responded respond about our new product. There is consist of contractors, maintenance workers and household.

4.4.2 Percentages of Each Questions

Question 1

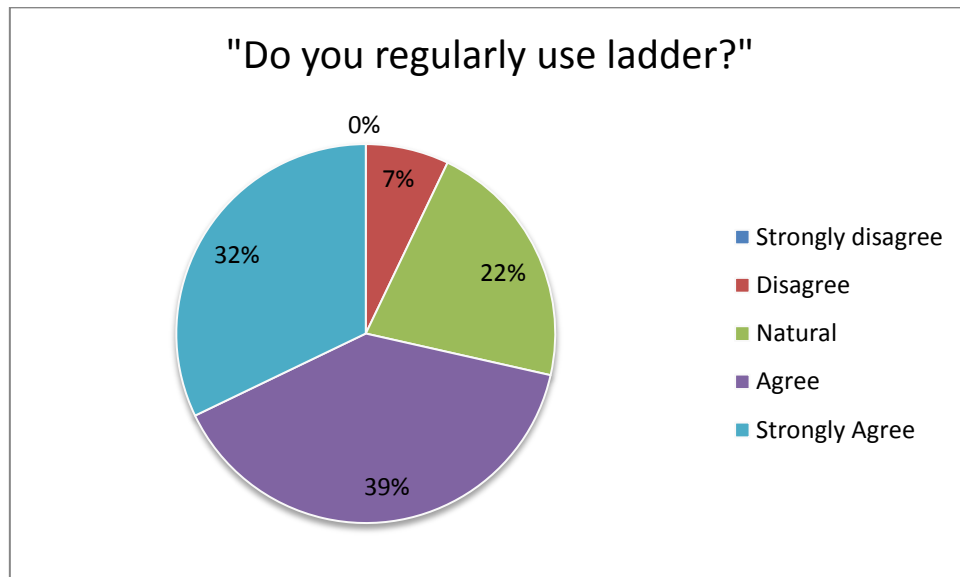


Chart 4.1

Chart above shows that every single person use ladder either frequently or not. No one choose “strongly disagree” for their answer and that tells ladder is a part of the important thing. Only 7% choose “disagree” which mean only 2 person rarely use ladder. This 2 person stand for household. 22% choose “natural”, some of them not use ladder frequently because part of them are household. Next, 32% choose “strongly agree” and 39% choose “agree” because most workers really need ladder to done their work.

Question 2

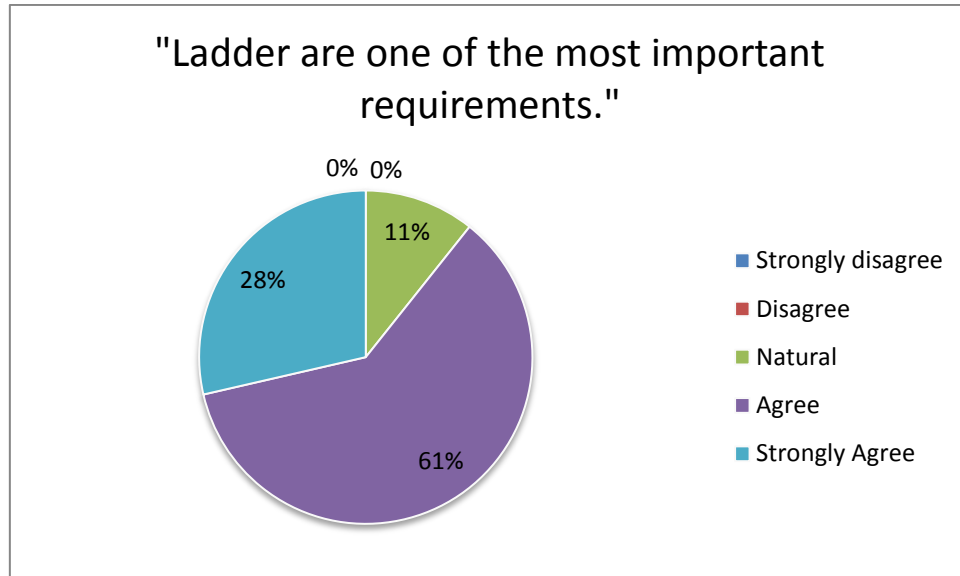


Chart 4.2

"Strongly disagree" and "disagree", both got 0%. This because of most of them usually use ladder even not too frequently. Next, "natural" scale got 11% because there 3 of them and they are household who rarely use ladder, they using it when they really need. 28% choose "strongly agree" because part of the respondent are from contractors because contractors feel want to use ladder if they need to reach something height or doing painting. Lastly, 61% choose "agree" because there is 17 respondent and 10 of them are maintenance workers. Usually they use for indoor work such as repairing any equipment in the house or building.

Question 3

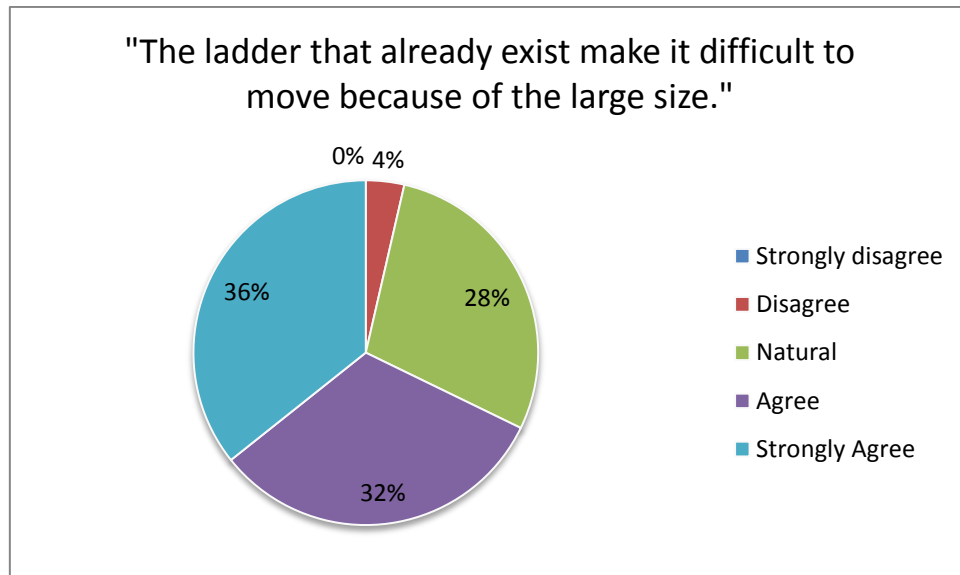


Chart 4.3

0% for “strongly disagree” because no one feel existing ladder is more easier to carry or use and 4% choose “disagree”, only one person choose that scale and it came from household. “Natural” got 28% and 8 respondent from household and contractor because they not usually use ladder to do their work. 32% for “agree” and 36% for “strongly agree”. Both got the highest because there are maintenance workers who always move from one place to another place while carrying the ladder.

Question 4

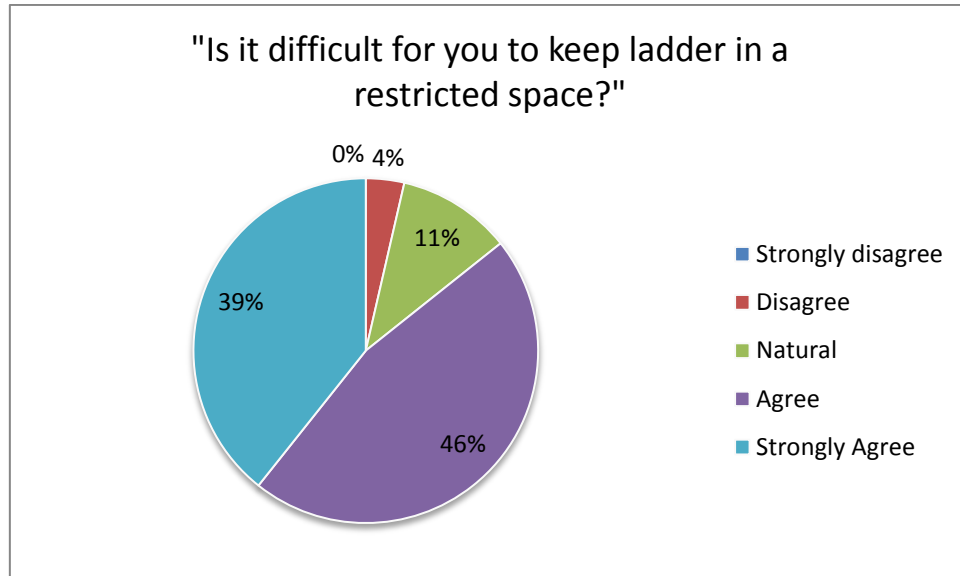


Chart 4.4

0% for “strongly disagree” because no one think that ladder already exist is more easier to save at the storage. 4% or only one person choose “disagree”. Then, 11% choose “natural” because 3 of them are contractor. They no need to worried about store the ladder. 39% for “strongly agree” and 4% for “agree” because all households and maintenance workers always have problem to storage it. Especially for households.

Question 5

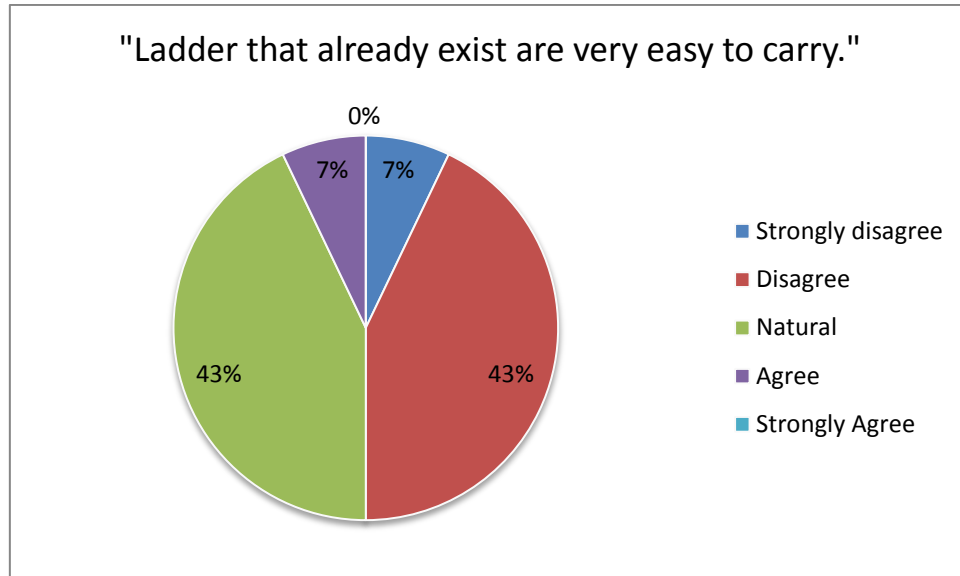


Chart 4.5

“Strongly agree” got 0% because no one really agree about easy to carry the ladder anywhere. “Strongly disagree” and “agree” both are 7% because some of them not usually use ladder and others are using it almost everyday. “Disagree” and “natural” both are 43% and the highest number.

Question 6

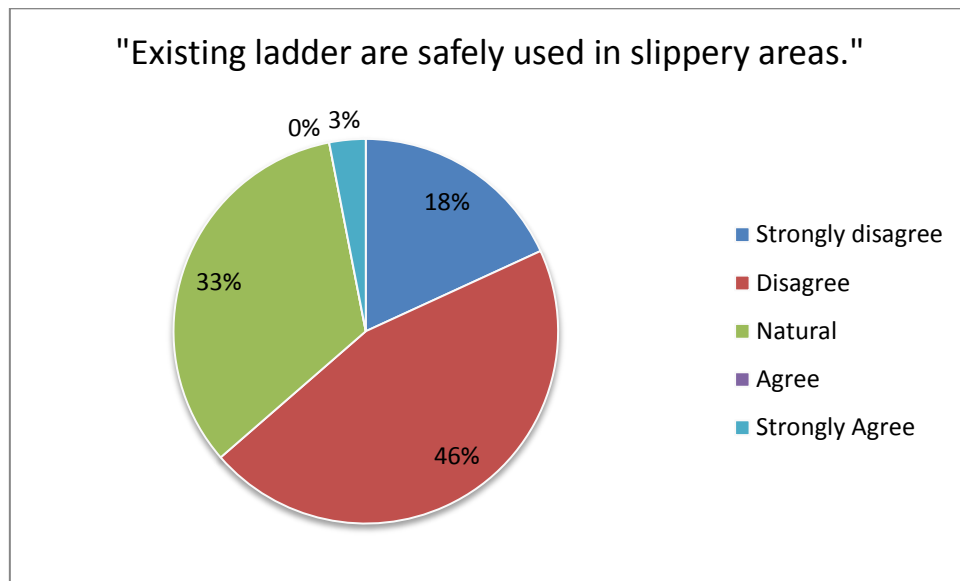


Chart 4.6

This question give “agree” a 0% and 3% for “strongly agree” because not most of them experience work in slippery areas. 18% choose “strongly disagree” and 33% choose “natural”. The highest number are 46% or 15 per 28 person choose “disagree” because most of are harder workers who always got in trouble when they need to work in slippery areas.

Question 7

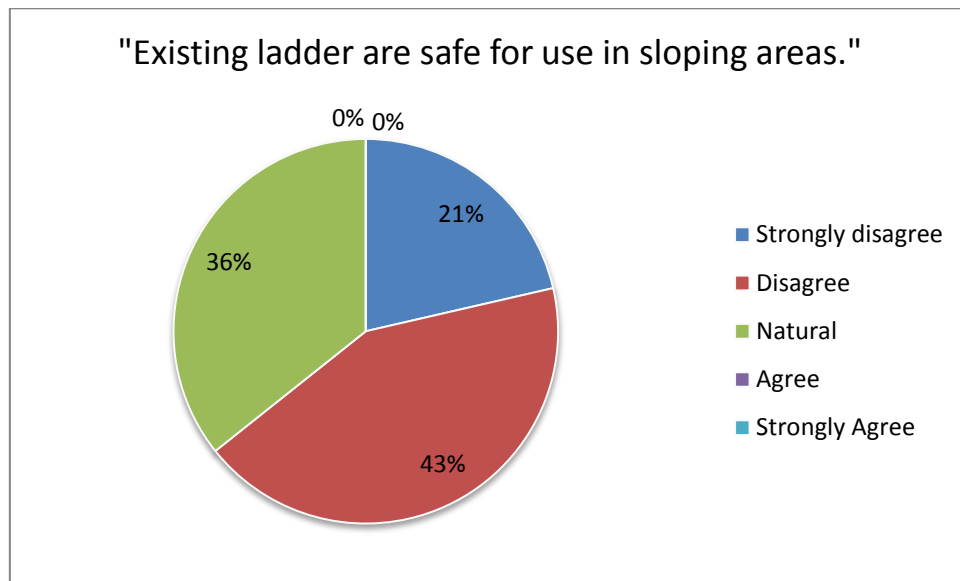


Chart 4.7

“Agree” and “disagree” both got 0% because no one really agree working with ladder on sloping areas. 21% choose “strongly disagree” and next, 36% choose “natural” because only some of the households can not manage the sloping space. last, 43% choose disagree because they already experience this area and some of them already got in trouble just because of sloping areas.

Question 8

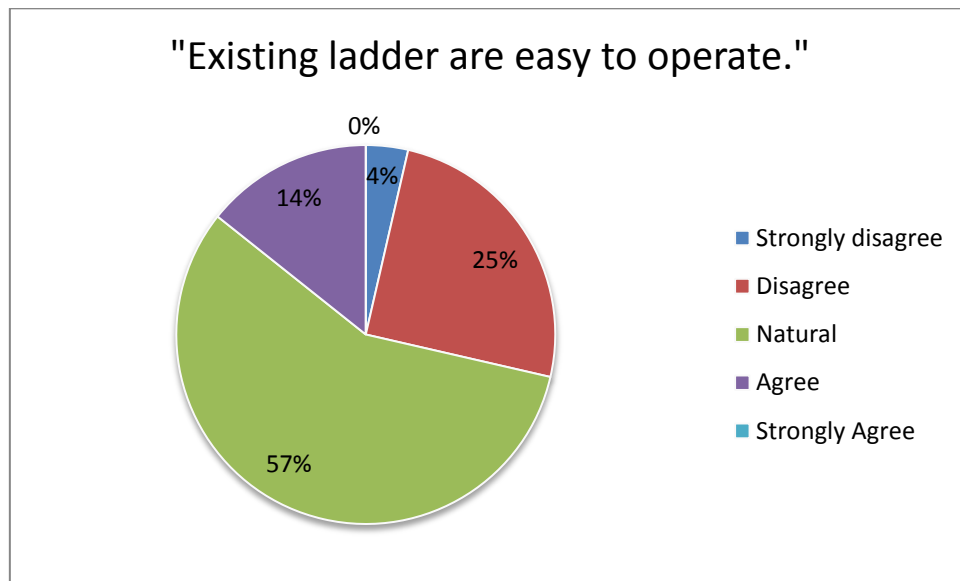


Chart 4.8

0% for “strongly agree” because existing ladder sometimes can be so hard to handle neither use in proper way. “Agree” got 14% and “disagree” got 25% because some of respondents are not really in the same side about these question. The highest is “natural” with 57% because respondents not really sure about existing ladder because not all type of ladder is hard to use.

Question 9

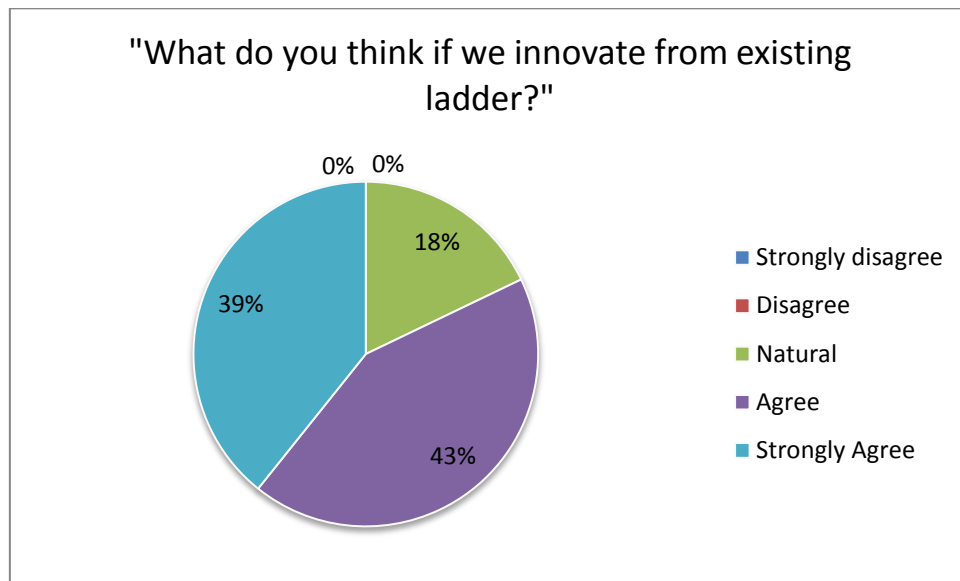


Chart 4.9

“Strongly disagree” and “disagree” both got 0% because most of respondents said that they really need new generations of ladder. 18% for “natural” because some of them not really care about the ladder that already exist. 39% for “strongly disagree” and 43% for “agree” because they agree to let us do something about the existing ladder.

Question 10

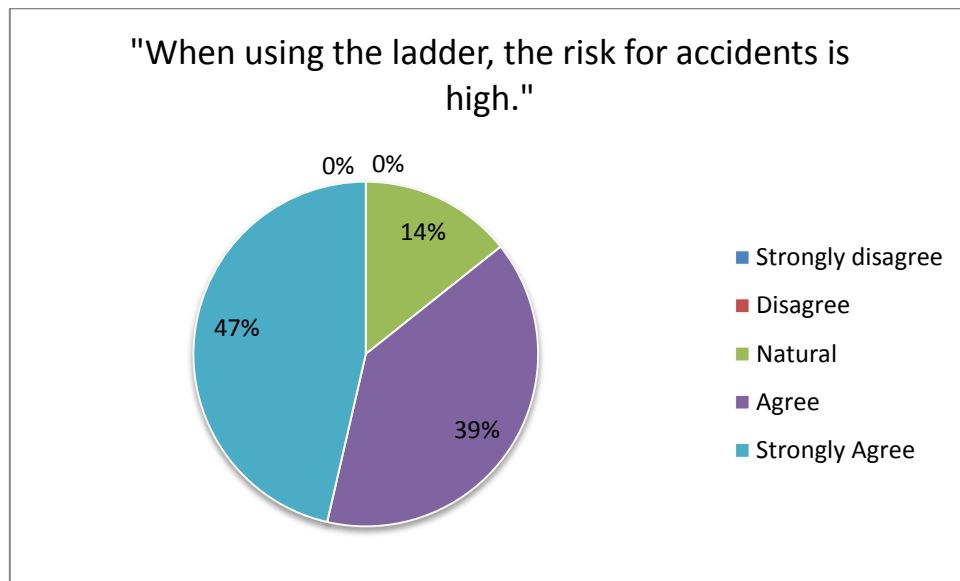


Chart 4.10

"Strongly disagree" and "disagree" both got 0% because they already experience bad thing happen when use the ladder that already exist. 14% for "natural" because households not use ladder for frequently, so that they not really know. "agree" and "strongly agree" each got 39% and 47% because workers, especially contractors who most work at outdoor can easily in risk to be an accident.

Question 11

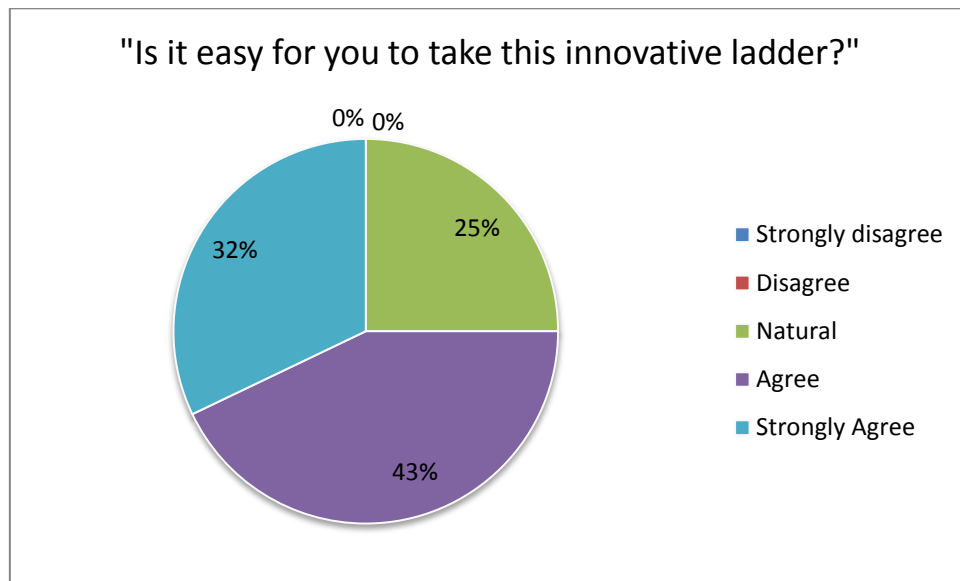


Chart 4.11

“Strongly disagree” and “disagree” both got 0% because they need something new. Next, 25% for “natural” because some of them do not really care about the existing ladder. “strongly agree” and “agree” each got 32% and 43% because most of the respondents really need a brand new ladder.

Question 12

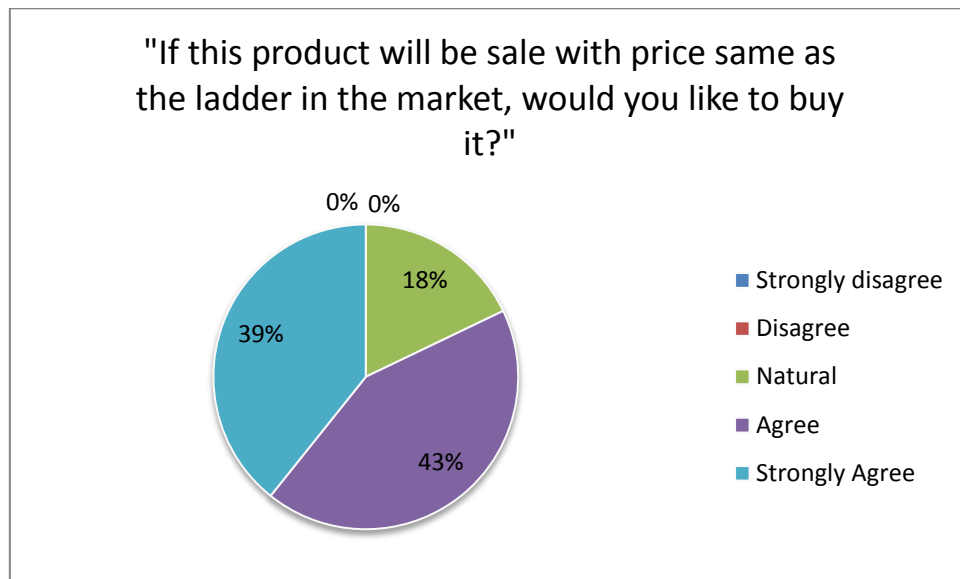


Chart 4.12

“Strongly disagree” and “disagree” both got 0% because all respondent most worried about the price might be too expensive. 18% for “natural” because some of respondent not really care about the price, as long as it’s save. “Strongly agree” and “agree” each got 39% and 43% because they really need something new and it is depend on their budget to have one.

4.5 CONCLUSION

Through the information and data obtained from the instrument being conducted, we present a summary of the findings of this study with a description details are also displayed through tables as well as pie charts to be easily understood. This finding was analyzed from informational sources respond from respondent through the instrument in question. The conclusion of this finding is answer the research questions and research objectives outlined at the beginning of this study. Then, this formulation is the result of a limited study conducted on groups respondents from contractors, maintenance workers and households using the method layered random sampling only. However, the findings from this study are relevant and applicable in related studies and appropriateness of information to refer to.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 INTRODUCTION

This chapter represents the finding of the research. The researches also have some suggestion and recommendation based on the result of the study in this chapter. The conclusion on the overall research together with the findings were presented by the researches.

5.2 DISCUSSION

This product research was successful in achieving the objective where to innovate a more compact ladder for easy portability and storage. We put a lot of efforts into this product. Regarding questionnaire, it distributed to the respondents for the purpose of forming data collection and data analysis. The result showed that this project is good and acceptable.

5.3 CONCLUSION

In conclusion, the questionnaire that we distributed to the respondents has a good and positive result. We just proceed to our plan of improving existing deficiencies and ensuring that our product have a place in the market.

5.4 RECOMMENDATIONS

In order to enhance this research are based on experience in conducting this research and the results of the research. We intend to update and correct any deficiencies based on the feedback from respondents. We'll think about our product marketing process once everything has been improve.

As conclusion, this chapter states about the objective that has been achieved. This product has its own advantages that are not same as those are sale in market. We believe that our product will be improve from step to step.

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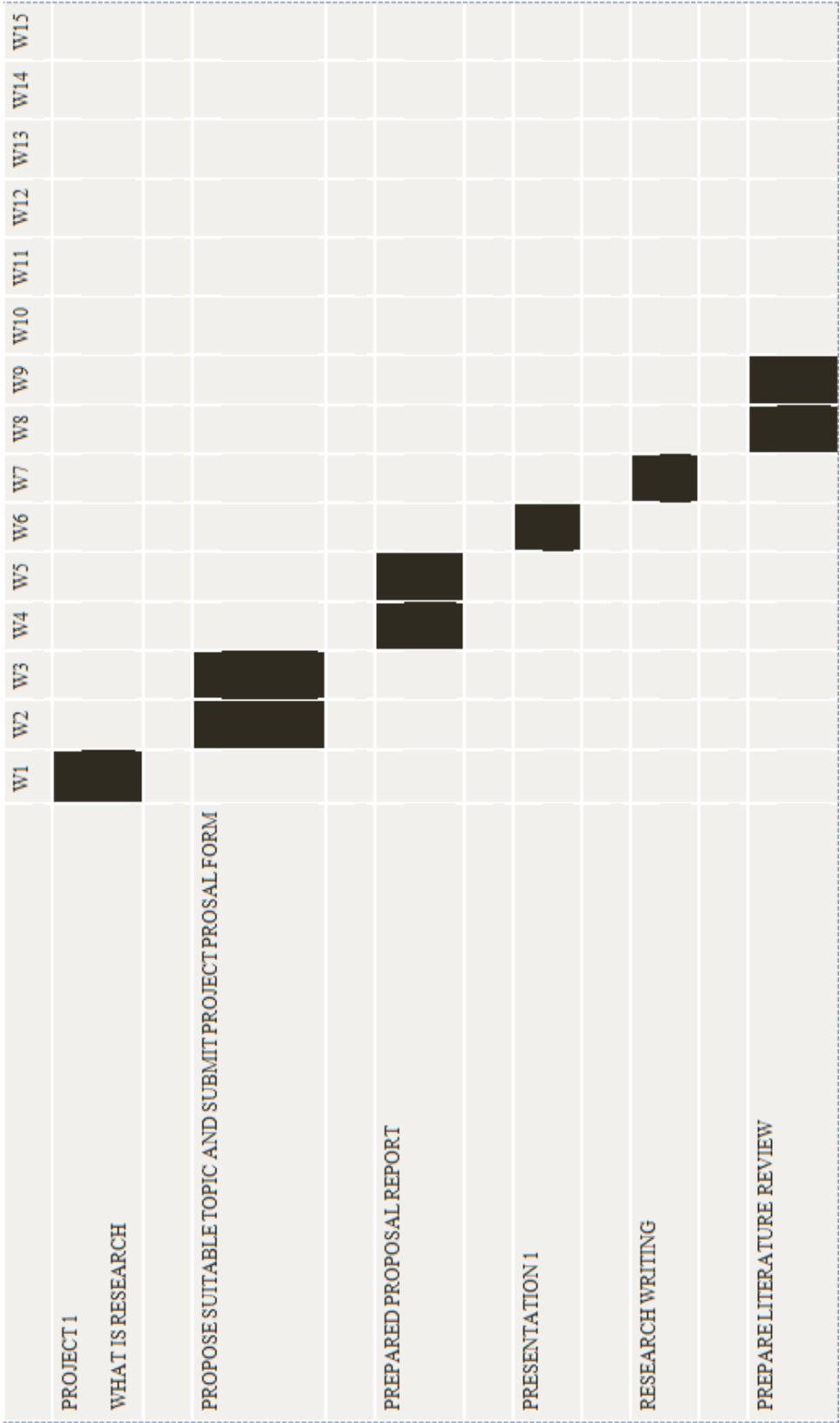
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APPENDICES

GANTT CHART



QUESTIANNNAIRE

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☐ Male ☒ Female *households*
 2. Age : 21 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		✓			
2	Ladder are one of the most important requirements.			✓		
3	The ladder that already exist make it difficult to move because of the large size.		✓			
4	Is it difficult for you to keep ladder in a restricted space?		✓		✓	
5	Ladder that already exist are very easy to carry.				✓	
6	Existing ladder are safely used in slippery areas.	✓				
7	Existing ladder are safe for use in sloping areas.	✓				
8	Existing ladder are easy to operate.	✓				
9	What do you think if we innovate from existing ladder?			✓		
10	When using the ladder, the risk for accidents is high.			✓		
11	Is it easy for you to take this innovative ladder?			✓		
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			✓		

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☐ Male ☒ Female *Low Schooling*
2. Age : 30 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		X			
2	Ladder are one of the most important requirements.			X		
3	The ladder that already exist make it difficult to move because of the large size.			X		
4	Is it difficult for you to keep ladder in a restricted space?			X		
5	Ladder that already exist are very easy to carry.				X	
6	Existing ladder are safely used in slippery areas.					X
7	Existing ladder are safe for use in sloping areas.	X				
8	Existing ladder are easy to operate.				X	
9	What do you think if we innovate from existing ladder?			X		
10	When using the ladder, the risk for accidents is high.			X		
11	Is it easy for you to take this innovative ladder?			X		
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			X		

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female *household*
2. Age : 27 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
2	Ladder are one of the most important requirements.			<input checked="" type="checkbox"/>		
3	The ladder that already exist make it difficult to move because of the large size.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4	Is it difficult for you to keep ladder in a restricted space?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5	Ladder that already exist are very easy to carry.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6	Existing ladder are safely used in slippery areas.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
7	Existing ladder are safe for use in sloping areas.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
8	Existing ladder are easy to operate.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
9	What do you think if we innovate from existing ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
10	When using the ladder, the risk for accidents is high.			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
11	Is it easy for you to take this innovative ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☐ Male ☒ Female *household*
2. Age : 35 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	
2	Ladder are one of the most important requirements.			<input checked="" type="radio"/>	<input type="radio"/>	
3	The ladder that already exist make it difficult to move because of the large size.		<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
4	Is it difficult for you to keep ladder in a restricted space?		<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	
5	Ladder that already exist are very easy to carry.			<input type="radio"/>	<input checked="" type="radio"/>	
6	Existing ladder are safely used in slippery areas.	<input checked="" type="radio"/>	<input type="radio"/>			<input checked="" type="radio"/>
7	Existing ladder are safe for use in sloping areas.	<input type="radio"/>	<input checked="" type="radio"/>			
8	Existing ladder are easy to operate.			<input type="radio"/>	<input checked="" type="radio"/>	
9	What do you think if we innovate from existing ladder?			<input checked="" type="radio"/>	<input type="radio"/>	
10	When using the ladder, the risk for accidents is high.			<input type="radio"/>		<input checked="" type="radio"/>
11	Is it easy for you to take this innovative ladder?			<input type="radio"/>	<input checked="" type="radio"/>	
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☐ Male ☒ Female *household*
2. Age : 23 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
2	Ladder are one of the most important requirements.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3	The ladder that already exist make it difficult to move because of the large size.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4	Is it difficult for you to keep ladder in a restricted space?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	Ladder that already exist are very easy to carry.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6	Existing ladder are safely used in slippery areas.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
7	Existing ladder are safe for use in sloping areas.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
8	Existing ladder are easy to operate.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
9	What do you think if we innovate from existing ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
10	When using the ladder, the risk for accidents is high.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
11	Is it easy for you to take this innovative ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female *Household*
2. Age : *30* year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Ladder are one of the most important requirements.			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	The ladder that already exist make it difficult to move because of the large size.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Is it difficult for you to keep ladder in a restricted space?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Ladder that already exist are very easy to carry.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Existing ladder are safely used in slippery areas.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Existing ladder are safe for use in sloping areas.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Existing ladder are easy to operate.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	What do you think if we innovate from existing ladder?			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	When using the ladder, the risk for accidents is high.			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Is it easy for you to take this innovative ladder?			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

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- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female *pengguna rumah*
2. Age : *28* year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Ladder are one of the most important requirements.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	The ladder that already exist make it difficult to move because of the large size.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Is it difficult for you to keep ladder in a restricted space?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Ladder that already exist are very easy to carry.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Existing ladder are safely used in slippery areas.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	Existing ladder are safe for use in sloping areas.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	Existing ladder are easy to operate.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9	What do you think if we innovate from existing ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10	When using the ladder, the risk for accidents is high.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11	Is it easy for you to take this innovative ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female household
2. Age : 20 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		✓	/		
2	Ladder are one of the most important requirements.			✓	/	
3	The ladder that already exist make it difficult to move because of the large size.			✓	/	
4	Is it difficult for you to keep ladder in a restricted space?			✓	/	
5	Ladder that already exist are very easy to carry.		/	✓	✓	
6	Existing ladder are safely used in slippery areas.		✓	/		✓
7	Existing ladder are safe for use in sloping areas.			/		
8	Existing ladder are easy to operate.			✓	/	
9	What do you think if we innovate from existing ladder?			✓	✓	/
10	When using the ladder, the risk for accidents is high.			✓	/	
11	Is it easy for you to take this innovative ladder?			/	✓	
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			/	✓	

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female *Contractor*
2. Age : 22 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
- 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Ladder are one of the most important requirements.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	The ladder that already exist make it difficult to move because of the large size.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Is it difficult for you to keep ladder in a restricted space?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Ladder that already exist are very easy to carry.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Existing ladder are safely used in slippery areas.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Existing ladder are safe for use in sloping areas.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Existing ladder are easy to operate.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9	What do you think if we innovate from existing ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
10	When using the ladder, the risk for accidents is high.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11	Is it easy for you to take this innovative ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female *kontraktor*
2. Age : 30 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?				/	
2	Ladder are one of the most important requirements.				/	
3	The ladder that already exist make it difficult to move because of the large size.			/		
4	Is it difficult for you to keep ladder in a restricted space?				/	
5	Ladder that already exist are very easy to carry.			/		
6	Existing ladder are safely used in slippery areas.			/		
7	Existing ladder are safe for use in sloping areas.			/		
8	Existing ladder are easy to operate.			/		
9	What do you think if we innovate from existing ladder?				/	
10	When using the ladder, the risk for accidents is high.			/	/	
11	Is it easy for you to take this innovative ladder?			/		
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			/		

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female
2. Age : 31 year's old

Contractor

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2	Ladder are one of the most important requirements.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3	The ladder that already exist make it difficult to move because of the large size.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4	Is it difficult for you to keep ladder in a restricted space?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5	Ladder that already exist are very easy to carry.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6	Existing ladder are safely used in slippery areas.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
7	Existing ladder are safe for use in sloping areas.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
8	Existing ladder are easy to operate.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
9	What do you think if we innovate from existing ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
10	When using the ladder, the risk for accidents is high.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
11	Is it easy for you to take this innovative ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female *kontraktor*
2. Age : 29 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?				/	
2	Ladder are one of the most important requirements.				/	
3	The ladder that already exist make it difficult to move because of the large size.			/		
4	Is it difficult for you to keep ladder in a restricted space?				/	
5	Ladder that already exist are very easy to carry.			/		
6	Existing ladder are safely used in slippery areas.			/		
7	Existing ladder are safe for use in sloping areas.			/		
8	Existing ladder are easy to operate.			/		
9	What do you think if we innovate from existing ladder?				/	
10	When using the ladder, the risk for accidents is high.			/	/	
11	Is it easy for you to take this innovative ladder?			/		
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			/		

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female *kontraktor*
2. Age : 25 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2	Ladder are one of the most important requirements.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3	The ladder that already exist make it difficult to move because of the large size.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4	Is it difficult for you to keep ladder in a restricted space?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5	Ladder that already exist are very easy to carry.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6	Existing ladder are safely used in slippery areas.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
7	Existing ladder are safe for use in sloping areas.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
8	Existing ladder are easy to operate.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
9	What do you think if we innovate from existing ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
10	When using the ladder, the risk for accidents is high.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
11	Is it easy for you to take this innovative ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : [☒] Male [☐] Female *contractor*
2. Age : 32 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?				/	
2	Ladder are one of the most important requirements.				/	
3	The ladder that already exist make it difficult to move because of the large size.			/		
4	Is it difficult for you to keep ladder in a restricted space?				/	
5	Ladder that already exist are very easy to carry.			/		
6	Existing ladder are safely used in slippery areas.			/		
7	Existing ladder are safe for use in sloping areas.			/		
8	Existing ladder are easy to operate.			/		
9	What do you think if we innovate from existing ladder?				/	
10	When using the ladder, the risk for accidents is high.			/	/	
11	Is it easy for you to take this innovative ladder?			/		/
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			/		

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female *contractor*
2. Age : 23 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
- 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		x		/	
2	Ladder are one of the most important requirements.			x	/	
3	The ladder that already exist make it difficult to move because of the large size.			x	/	
4	Is it difficult for you to keep ladder in a restricted space?			x	/	
5	Ladder that already exist are very easy to carry.			/	x	
6	Existing ladder are safely used in slippery areas.			/		x
7	Existing ladder are safe for use in sloping areas.			/		
8	Existing ladder are easy to operate.			/	x	
9	What do you think if we innovate from existing ladder?			x	/	/
10	When using the ladder, the risk for accidents is high.				/	
11	Is it easy for you to take this innovative ladder?				/	
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?				/	

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female *Amirah*
2. Age : 27 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?				/	
2	Ladder are one of the most important requirements.				/	
3	The ladder that already exist make it difficult to move because of the large size.				/	
4	Is it difficult for you to keep ladder in a restricted space?				/	
5	Ladder that already exist are very easy to carry.			/		
6	Existing ladder are safely used in slippery areas.			/		
7	Existing ladder are safe for use in sloping areas.			/		
8	Existing ladder are easy to operate.			/		
9	What do you think if we innovate from existing ladder?				/	
10	When using the ladder, the risk for accidents is high.			/	/	
11	Is it easy for you to take this innovative ladder?			/		/
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			/		

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female *Kontraktor*
2. Age : 26 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
- 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		X		/	
2	Ladder are one of the most important requirements.			X	/	
3	The ladder that already exist make it difficult to move because of the large size.			X	/	
4	Is it difficult for you to keep ladder in a restricted space?			X	/	
5	Ladder that already exist are very easy to carry.			/	X	
6	Existing ladder are safely used in slippery areas.			/		
7	Existing ladder are safe for use in sloping areas.		/			
8	Existing ladder are easy to operate.			/	X	
9	What do you think if we innovate from existing ladder?			X	/	/
10	When using the ladder, the risk for accidents is high.				/	
11	Is it easy for you to take this innovative ladder?			X	/	
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			X	/	

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female *kontraktor*

2. Age : 27 year's old

Part II

1 – Strongly disagree 3 – Natural 5 – Strongly agree
2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?				/	
2	Ladder are one of the most important requirements.				/	
3	The ladder that already exist make it difficult to move because of the large size.				/	
4	Is it difficult for you to keep ladder in a restricted space?				/	
5	Ladder that already exist are very easy to carry.			/		
6	Existing ladder are safely used in slippery areas.		/	/		
7	Existing ladder are safe for use in sloping areas.		/			
8	Existing ladder are easy to operate.			/	/	
9	What do you think if we innovate from existing ladder?				/	
10	When using the ladder, the risk for accidents is high.			/	/	
11	Is it easy for you to take this innovative ladder?			/		/
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			/		

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female *mm*
2. Age : 22 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
2	Ladder are one of the most important requirements.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3	The ladder that already exist make it difficult to move because of the large size.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4	Is it difficult for you to keep ladder in a restricted space?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	Ladder that already exist are very easy to carry.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6	Existing ladder are safely used in slippery areas.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
7	Existing ladder are safe for use in sloping areas.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
8	Existing ladder are easy to operate.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
9	What do you think if we innovate from existing ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
10	When using the ladder, the risk for accidents is high.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
11	Is it easy for you to take this innovative ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female maintenance
2. Age : 25 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?				/	
2	Ladder are one of the most important requirements.				/	
3	The ladder that already exist make it difficult to move because of the large size.				/	
4	Is it difficult for you to keep ladder in a restricted space?				/	
5	Ladder that already exist are very easy to carry.		/	/		
6	Existing ladder are safely used in slippery areas.		/	/		
7	Existing ladder are safe for use in sloping areas.		/			
8	Existing ladder are easy to operate.			/	/	
9	What do you think if we innovate from existing ladder?				/	/
10	When using the ladder, the risk for accidents is high.			/	/	/
11	Is it easy for you to take this innovative ladder?			/	/	
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			/		/

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female *Selenggara*
2. Age : 24 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
2	Ladder are one of the most important requirements.			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
3	The ladder that already exist make it difficult to move because of the large size.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	Is it difficult for you to keep ladder in a restricted space?			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
5	Ladder that already exist are very easy to carry.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6	Existing ladder are safely used in slippery areas.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
7	Existing ladder are safe for use in sloping areas.		<input checked="" type="checkbox"/>			
8	Existing ladder are easy to operate.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
9	What do you think if we innovate from existing ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
10	When using the ladder, the risk for accidents is high.					<input checked="" type="checkbox"/>
11	Is it easy for you to take this innovative ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female *maintenance*
2. Age : 30 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?					/
2	Ladder are one of the most important requirements.					/
3	The ladder that already exist make it difficult to move because of the large size.					/
4	Is it difficult for you to keep ladder in a restricted space?					/
5	Ladder that already exist are very easy to carry.		/	/		
6	Existing ladder are safely used in slippery areas.		/	/		
7	Existing ladder are safe for use in sloping areas.		/	/		
8	Existing ladder are easy to operate.			/	/	
9	What do you think if we innovate from existing ladder?				/	/
10	When using the ladder, the risk for accidents is high.			/	/	/
11	Is it easy for you to take this innovative ladder?			/	/	/
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			/	/	/

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project/
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female
2. Age : 27 year's old

Maintenance

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
2	Ladder are one of the most important requirements.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	The ladder that already exist make it difficult to move because of the large size.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	Is it difficult for you to keep ladder in a restricted space?			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
5	Ladder that already exist are very easy to carry.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6	Existing ladder are safely used in slippery areas.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
7	Existing ladder are safe for use in sloping areas.		<input checked="" type="checkbox"/>			
8	Existing ladder are easy to operate.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
9	What do you think if we innovate from existing ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
10	When using the ladder, the risk for accidents is high.					<input checked="" type="checkbox"/>
11	Is it easy for you to take this innovative ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female

2. Age : 26 year's old

maintenance

Part II

1 – Strongly disagree 3 – Natural 5 – Strongly agree
2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?					/
2	Ladder are one of the most important requirements.					/
3	The ladder that already exist make it difficult to move because of the large size.					/
4	Is it difficult for you to keep ladder in a restricted space?					/
5	Ladder that already exist are very easy to carry.		/			
6	Existing ladder are safely used in slippery areas.		/			
7	Existing ladder are safe for use in sloping areas.		/			
8	Existing ladder are easy to operate.		/			
9	What do you think if we innovate from existing ladder?				/	/
10	When using the ladder, the risk for accidents is high.			/	/	/
11	Is it easy for you to take this innovative ladder?			/	/	/
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			/		/

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female m
2. Age : 24 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
2	Ladder are one of the most important requirements.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	The ladder that already exist make it difficult to move because of the large size.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	Is it difficult for you to keep ladder in a restricted space?			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
5	Ladder that already exist are very easy to carry.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6	Existing ladder are safely used in slippery areas.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
7	Existing ladder are safe for use in sloping areas.		<input checked="" type="checkbox"/>			
8	Existing ladder are easy to operate.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
9	What do you think if we innovate from existing ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
10	When using the ladder, the risk for accidents is high.					<input checked="" type="checkbox"/>
11	Is it easy for you to take this innovative ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female m w.
2. Age : 25 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?					/
2	Ladder are one of the most important requirements.					/
3	The ladder that already exist make it difficult to move because of the large size.					/
4	Is it difficult for you to keep ladder in a restricted space?					/
5	Ladder that already exist are very easy to carry.		/	/		
6	Existing ladder are safely used in slippery areas.		/	/		
7	Existing ladder are safe for use in sloping areas.		/			
8	Existing ladder are easy to operate.	/	/	/	/	
9	What do you think if we innovate from existing ladder?				/	/
10	When using the ladder, the risk for accidents is high.			/	/	/
11	Is it easy for you to take this innovative ladder?			/	/	/
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			/	/	/

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female *maintenence*
2. Age : 30 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
 2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?					/
2	Ladder are one of the most important requirements.					/
3	The ladder that already exist make it difficult to move because of the large size.					/
4	Is it difficult for you to keep ladder in a restricted space?					/
5	Ladder that already exist are very easy to carry.		/			
6	Existing ladder are safely used in slippery areas.		/			
7	Existing ladder are safe for use in sloping areas.		/			
8	Existing ladder are easy to operate.	/				
9	What do you think if we innovate from existing ladder?				/	/
10	When using the ladder, the risk for accidents is high.			/	/	/
11	Is it easy for you to take this innovative ladder?			/		/
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			/		/

QUESTIONNAIRE

Assalamualaikum / Selamat Sejahtera

- This questionnaire was created to get feedback on our final year project.
- Hoping that you can answer all the question for helping us to improve our project.
- Your kindness are really appreciate.

Part I

1. Gender : ☒ Male ☐ Female *Selanggar*
2. Age : 27 year's old

Part II

- 1 – Strongly disagree 3 – Natural 5 – Strongly agree
2 – Disagree 4 – Agree

NO.	CONTENTS	1	2	3	4	5
1	Do you regularly use ladder?		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
2	Ladder are one of the most important requirements.			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
3	The ladder that already exist make it difficult to move because of the large size.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	Is it difficult for you to keep ladder in a restricted space?			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
5	Ladder that already exist are very easy to carry.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6	Existing ladder are safely used in slippery areas.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
7	Existing ladder are safe for use in sloping areas.		<input checked="" type="checkbox"/>			
8	Existing ladder are easy to operate.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
9	What do you think if we innovate from existing ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
10	When using the ladder, the risk for accidents is high.				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11	Is it easy for you to take this innovative ladder?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
12	If this product will be sale with price same as the ladder in the market, would you like to buy it?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

PROJECT COST

Ladder for one quantity	RM 150
Ladder for two quantities	RM 300 ✓
Wheel for one quantity	RM 75
Wheel for four quantities	RM 300 ✓
Plate steel for one quantity	RM 25
Plate steel for four quantities	RM 100 ✓

Total RM 300 + RM 300 + RM 100

RM 700