

DESIGN AND MANUFACTURE SIMPLE PORTABLE ASTRO RECEIVER
STAND

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STAND

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A report submitted in partial fulfillment of the requirements for the award of the
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SUPERVISOR DECLARATION

I hereby declare that I had read this thesis and in my opinion this thesis is sufficient in terms of scope and quality for the purpose of the granting of Diploma of Mechanical Engineering.

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Date :

STUDENT DECLARATION

I declare that this thesis entitled “SIMPLE PORTABLE ASTRO RECEIVER STAND” is the result of my own research except as cited in references. The thesis has not been accepted for any diploma and is not concurrently submitted in candidature of any other diploma.

Signature :

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DEDICATION

To my beloved father and mother

SAFIEE BIN HASSAN

ZALEHA BINTI ABDULLAH

ACKNOWLEDGEMENTS

First of all I am grateful to ALLAH S.W.T for blessing me in finishing my final year project (FYP) with success in achieving my objectives to complete this project.

Secondly I want to thank my family for giving morale support and encouragement in completing my project and also throughout my study in UMP as they are my inspiration to success. I also would like to thank my supervisor EN IDRIS BIN MAT SAHAT for guiding and supervising my final year project throughout this semester. He has been very helpful to me in finishing my project and I appreciate every advice that he provided in correcting my mistakes. The credits also goes to all lecturers, tutors, teaching engineers (JP) and assistant teaching engineers (PJP) for their cooperation and guide in helping me finishing my final year project.

Lastly, I want to thank all my friends that have given me advice and encouragement in completing my project. Thank you very much to all and may ALLAH bless you.

ABSTRACT

This thesis deals with design and fabricate simple portable Astro receiver stand. Most Astro transmitter stand stationary and difficult to remove and not portable User or the people of Malaysia do not have to worry about to move or carry anywhere, Since Simple Portable Astro Receiver Stand (SPARS) is produced whereas the stand is not heavy and easy for storage. Because SPARS is lightweight and not too big, the installation does not revere long time, for example in the corridor, with clamp that has been modified, easier to be installed anywhere. This product can be installed or adjusted at high or lower place. Final product is durable and can withstand cold and rough environment. It is able to withstand tropical climates and can be placed anywhere, inside or outside the hause.

ABSTRAK

Tesis ini membentangkan rekaan dan pembuantan Penahan Pemancar Astro Mudah alih. Kebanyakkan stand pemancar Astro adalah terhad dan sukar untuk dialihkan. Oleh itu, dengan adanya penahan pemancar astro mudah alih ini, pengguna atau rakyat malaysia tidak perlu lagi risau untuk mengalih atau membawa kemana-mana, hal ini kerana stand ini tidak terlalu berat dan mudah untuk disimpan. Disebabkan stand ini ringan dan tidak terlalu besar jadi pemasangannya tidak mengambil masa yang lama, contohnya di koridor, dengan adanya pengapit yang telah di ubah suai, memudahkan untuk dilekatkan dimana-mana. Stand ini juga boleh dipasang atau dilaraskan di tempat yang tinggi atau rendah. Hasil kerja akhir ini tahan lama dan mampu bertahan keadaan dingin dan kasar. Hal ini mampu menghadapi iklim tropika dan boleh ditempatkan di mana-mana, dalam mahupun luar bilik.

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CHAPTER 1

INTRODUCTION

1.0 Introduction

For this chapter, It is about discussion of the problem background, problem statement, objective of the project and lastly scope of the project

1.1 Project Background

ASTRO ALL ASIA NETWORKS plc (ASTRO) is Malaysia's leading cross-media group with significant presence in DTH (Direct-To-Home) TV services. Portable astro receiver is a mobile transmitter path from one place to another. It can reduce the human burden in their daily lives. This device is usually used by Malaysian people, where the astro provide facilities to its users, it also difficult to be removed, to be stored and carried anywhere. This device have own advantages and disadvantages.

So this project is to fabricate simple portable Astro receiver stand, the existing stand Astro not moveable and potable. So this project is about fabrication of simple portable Astro receiver. This stand is lightweight and easy to set up. The system can be field assembled by two people in few minutes. This astro stand also can be installed at high or lower place.

1.2 PROBLEM STATEMENT

Most Malaysian usually subscribe Astro to watch television. However, most Astro stand are difficult to carry and not portable.

1.3 OBJECTIVES

The main objectives of this project is to design and manufacture a simple portable Astro receiver stand by using mechanical skills.

1.4 SCOPE

- i. Can use at lower or high place.
- ii. Can be used outside or inside the house.
- iii. Easy to store and adjustable.
- iv. Provided with clamps.

1.5 FLOW CHART

A flow chart, or flow diagram, is a graphical representation of a process or system that details the sequencing of steps required to create output.

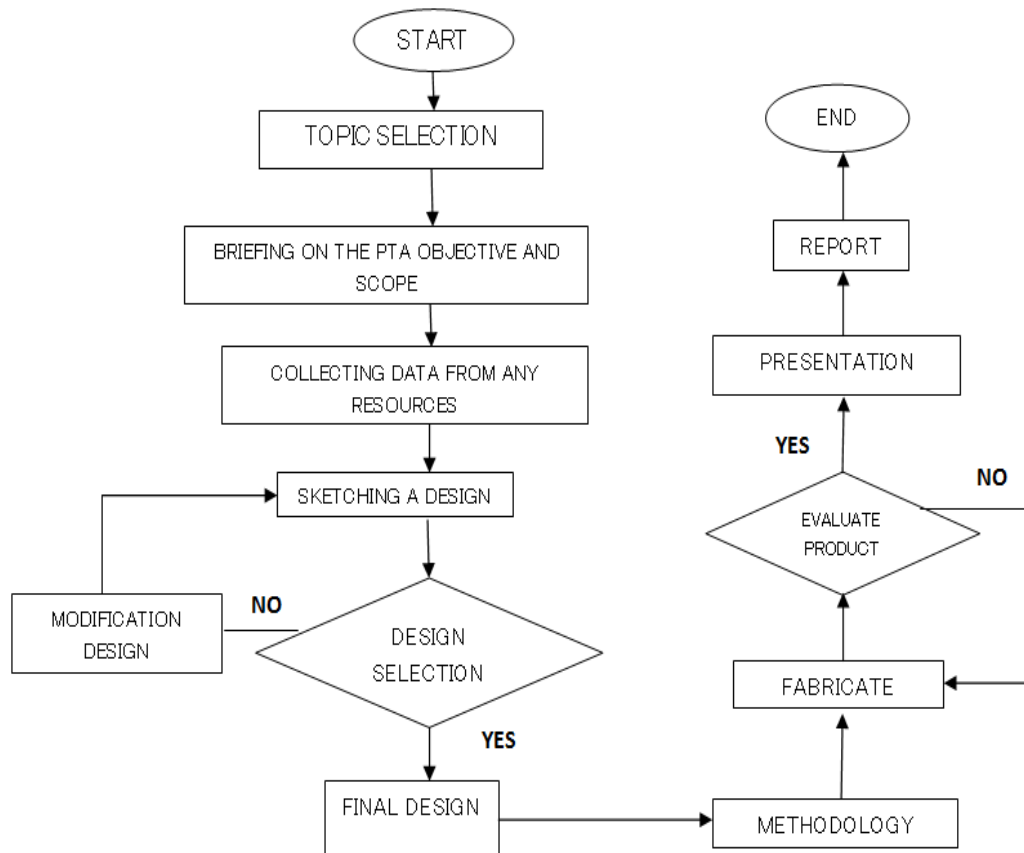


Figure 1.1: Flow Chart

1.6 GANTT CHART

Table 1: Gantt chart

ACTIVITIES	WEEK														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Title Selection, Scope, Objective	Actual	Actual													
Literature Review and Identify Problem		Actual	Actual	Actual	Actual	Planning									
Sketching Design And Select Final Design				Actual	Actual	Planning									
1 st Draft Summation						Actual	Actual	Planning							
Pre-Presentation								Actual	Planning						
fabrication										Actual	Actual	Actual	Actual	Actual	Actual
result and discussion											Actual	Actual	Actual	Actual	
Final Presentation															Actual
Final report										Actual	Actual	Actual	Actual	Actual	Actual

 Actual

 Planning

Chapter 2

LITERATURE REVIEW

2.1 INTRODUCTION

This section is about the literature review of the project. In this chapter, there is a history and type of astro stand. Besides that, it is consists with the design which were available at the market.

2.2 V-SAT ANTENNA STAND



Figure 2.1: Design 1... [1]

The weight of the V-SAT Antenna is approx. 2.5kg

The width of the leg span erected is approx. 1.18M

The height this stand is 100cm.

2.2.1 Materials used

a) Hollow bar (main body):

- Hollow bar used to make the main body. This part must be made from hard material.
- In addition, this material has a property with light in weight.

2.2.2 Advantages and disadvantages

ADVANTAGE

- i. Low cost
- ii. Light weight
- iii. Save surface
- iv. Portable

DISADVANTAGE

- i. cannot adjustable
- ii. cannot set at different level
- iii. difficult to store

2.3 3' FOOT DISH TRIPOD STAND



Figure 2.2: Design 2... [2]

The weight of the Tripod is approx. 1.5KG.

The width of the leg span erected is approx. 1.18M

The height of the centre pole when erected is 94cm.

The collapsed length of the Tripod is approx. 88cm and 13cm wide.

2.3.1 Materials used

a) Hollow bar (main body):

- Hollow bar used to make the main body. This part must be made from hard material.
- In addition, this material has a property with light in weight

b) Rubber (holder) :

- rubber is suitable to serve as the holder because of the rough surface and can prevent the hand from slipping.

2.3.2 Advantages and disadvantages

ADVANTAGE

- i. Low cost
- ii. Light weight
- iii. Save surface
- iv. Portable

DISADVANTAGE

- i. cannot adjustable
- ii. cannot set at different level

2.4 ORION STAND AND DISH



Figure 2.3: Orion stand and dish ... [3]

The weight of the Orion stand is approx. 3KG.

The width of the leg span erected is approx. 50cm

The height of this stand is 110cm.

2.4.1 Materials used

a) Angle iron

- An angleiron is a flat metal rod that has been folded to a 90-degree angle along its length, resulting in an L-shaped piece.
- Usually the two sides of the angle are of equal length. Heavier angleiron is often a structural element in buildings, bridges, and so on, while lighter angleiron is used for a variety of supports.
- An adjustable bed frame, for example, is made of angleiron.

b) Zink

- referred to in nonscientific contexts as spelter, is a bluish-white, lustrous, diamagnetic metal, though most common commercial grades of the metal have a dull finish.
- It is somewhat less dense than iron and has a hexagonal crystal structure.

c) Aluminium

- Aluminium is a silvery white and ductile member of the boron group of chemical elements.
- Aluminiumdurable, lightweight, malleable metal with appearance ranging from silvery to dull grey, depending on the surface roughness.
- Aluminium is nonmagnetic and nonsparking.

2.4.2 Advantage and disadvantage

ADVANTAGE

- Low cost
- Light weight
- Save surface
- Portable

DISADVANTAGE

- unstable
- cannot set at different level
- complicated

2.5 ASTRO



Figure 2.4: Design 4... [4]

The weight of the astro stand is approx. 2.9KG.

The width of the leg span erected is approx. 50cm

The height of this stand is 120cm.

2.5.1 Materials used

A. Stainless steel:

- Stainless steel used to make the part that will catch the mouse. This part must be made from hard material so that the mouse can't release itself by bite the trap by using it's teeth.
- In metallurgy, stainless steel is defined as a steel alloy with a minimum of 10% chromium content by mass.
- Stainless steel does not stain, corrode, or rust as easily as ordinary steel but it is not stain-proof. It is also called corrosion-resistant steel or CRES when the alloy type and grade are not detailed, particularly in the aviation industry.

B. Aluminium hollow bar (main body) :

- Aluminium is a silvery white and ductile member of the boron group of chemical elements.
- Aluminium durable, lightweight, malleable metal with appearance ranging from silvery to dull grey, depending on the surface roughness.
- Aluminium is nonmagnetic and nonsparking.

2.5.2 Advantage and disadvantage

ADVANTAGE

- i. Light weight
- ii. Low cost

DISADVANTAGE

- i. Not portable
- ii. Cannot adjustable
- iii. Cannot set at different level
- iv. Not easy to store

2.6 FABRICATION PLANNING PROCESS.

2.6.1 Arc welding (joining)

Arc welding is a type of welding that uses a welding power supply to create an electric arc between an electrode and the base material to melt the metals at the welding point. They can use either direct (DC) or alternating (AC) current, and consumable or non-consumable electrodes. The welding region is sometimes protected by some type of inert or semi-inert gas, known as a shielding gas, and/or an evaporating filler material. The process of arc welding is widely used because of its low capital and running costs.

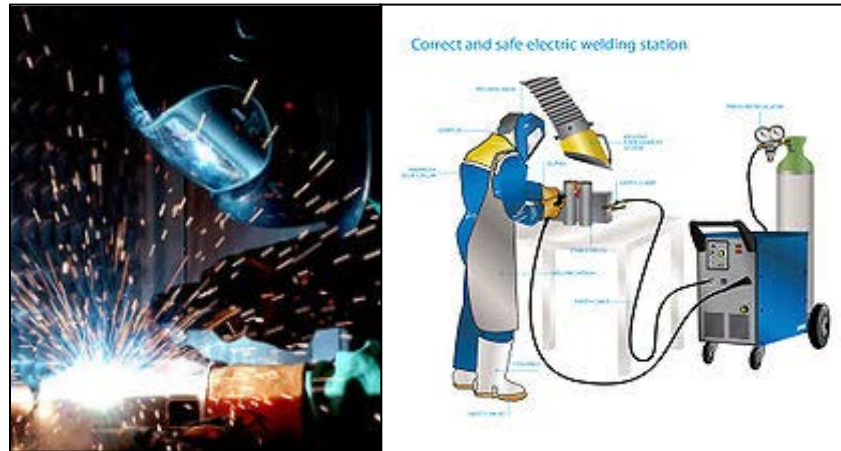


Figure 2.5 : Arc welding and the corect Arc welding station

Welding can be a dangerous and unhealthy practice without the proper precautions; however, with the use of new technology and proper protection the risks of injury or death associated with welding can be greatly reduced. Because many common welding procedures involve an open electric arc or flame, the risk of burns is significant. To prevent them, welders wear protective clothing in the form of heavy leather gloves and protective long sleeve jackets to avoid exposure to extreme heat, flames, and sparks. Figure above show the arc welding and the correct welding station.

2.6.2 Grinding machine

A grinding machine, often shortened to grinder, is a machine tool used for grinding, which is a type of machining using an abrasive wheel as the cutting tool. Each grain of abrasive on the wheel's surface cuts a small chip from the workpiece via shear deformation.

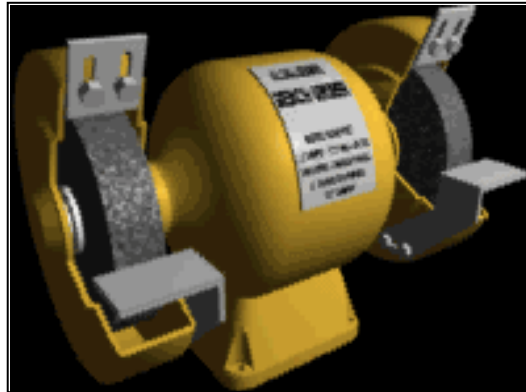


Figure 2.6: Grinding machine

2.6.3 Hand grinder.

A hand grinder as is a tool which rotates a grindstone but in this case the grinding medium is a thin disc that can be used for either grinding or cutting metal. It is usually used for cutting off material after a welding process or cutting off burrs. Although it is a convenient tool, it is dangerous tool like the bench grinder. Again, eye protection should be worn when using a hand grinder. Hand grinder used for cutting the material.



Figure 2.7: hand grinder

2.6.4 Drilling

Drilling involves the creation of holes that are right circular cylinders. This is accomplished most typically by using a twist drill, something most readers will have seen before. The figure below illustrates a cross section of a hole being cut by a common twist drill:

The chips must exit through the flutes to the outside of the tool. As can be seen in the figure, the cutting front is embedded within the workpiece, making cooling difficult. The cutting area can be flooded, coolant spray mist can be applied, or coolant can be delivered through the drill bit shaft.

The characteristics of drilling that set it apart from other powered metal cutting operations are:

- The chips must exit out of the hole created by the cutting.
- Chip exit can cause problems when chips are large and/or continuous.
- The drill can wander upon entrance and for deep holes.
- For deep holes in large workpieces, coolant may need to be delivered through the drill shaft to the cutting front.



Figure 2.8: Drilling machine

2.6.5 Sandpaper (finishing)

Sandpaper backings may be glued to the paper or form a separate support structure for moving sandpaper, such as used in sanding belts and discs. Stronger paper or backing increases the ease of sanding wood, so decent quality sand paper is much better than low cost and low quality sandpaper.

The table bellow show table, compiled from the references at the bottom, compares the CAMI and "P" designations with the average grit size in micrometers (μm).



Figure 2.9: Sand paper

Table 2.1: grit size table for sand paper

Grit size table			
	ISO/FEPA Grit designation	CAMI Grit designation	Average particle diameter (µm)
MACROGRITS			
Extra Coarse (Very fast removal of material, hardwood flooring initial sanding)	P12		1815
	P16		1324
	P20		1000
	P24		764
		24	708
	P30		642
		30	632
		36	530
	P36		538
Coarse (Rapid removal of material)	P40	40	425
		50	348
	P50		336
Medium (sanding bare wood in preparation for finishing, for gentle removal of varnish, also used for skateboard grip tape)		60	265
	P60		269
	P80		201
Fine (sanding bare wood in preparation for finishing, not suitable for removing varnish or paint from wood, use for cleaning plaster and water stain from wood)		80	190
	P100		162
		100	140
	P120		125
		120	115
		150	92
	P180	180	82
	P220	220	68
MICROGRITS			
Very Fine (sanding finishes between coats)	P240		58.5
		240	53.0
	P280		52.2
	P320		46.2
Extra fine, start polishing of wood			40.5
		320	36.0
	P400		35.0
	P500		30.2
		360	28.0
Super fine (final sanding of finishes, final sanding of wood)			25.8
		400	23.0
	P800		21.8
		500	20.0
	P1000		18.3
Ultra fine (final sanding and polishing of thick finishes)		600	16.0
	P1200		15.3
		800	12.6
	P2000	1000	10.3
	P2500		8.4

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

A methodology is instantiated and materialized by a set of methods, techniques and tools. A tool is any instrument or apparatus that is necessary to the performance of some task. A methodology does not describe specific methods; nevertheless it does specify several processes that need to be followed. It also allows others to replicate our study and run new and different studies that are based on our methodology.

3.2 SELECTED MATERIALS



Figure 3.1: Aluminium hollow bar in the market

3.2.1 Aluminium hollow bar

Aluminum is a silvery white and ductile member of the boron group of chemical elements. Aluminium is durable, lightweight, malleable metal with appearance ranging from silvery to dull grey, depending on the surface roughness. Aluminium is nonmagnetic and no sparking.



Figure 3.2: Hollow square bar

3.2.2 Hollow square bar (main body)

This type of material is used to be the frame for the trolley. It is selected because the stand is preferred to be tough and strong.



Figure 3.3: Long bolt and U bolt

3.2.3 Long bolt and U bolt

A bolt is an externally threaded fastener designed for insertion through holes in assembled parts, and is normally intended to be tightened or released by torquing a nut. A screw is an externally threaded fastener capable of being inserted into holes in assembled parts, of mating with a preformed internal thread or forming its own thread, and of being tightened or released by torquing the head.



Figure 3.4: G clamp

3.2.4 G clamp

Iron Casting Square thread spindle. Body powder coated Finish Spindle Chrome Plated. A G-clamp is used by turning the screw through the bottom of the frame until the desired state is reached. In the case that the clamp is being tightened, this is when the objects being secured are satisfactorily secured between the flat end of the screw and the flat end of the frame. If the clamp is being loosened, this is when a sufficient amount of force has relieved to allow the secured objects to be moved.

3.3.1 DESIGN GENERATION

Product design is concerned with the efficient and effective generation and development of ideas through a process that leads to new products. Product Designers conceptualize and evaluate ideas, making them tangible through products in a more systematic approach. Their role is to combine art, science and technology to create tangible three-dimensional goods. This evolving role has been facilitated by digital tools that allow designers to communicate, visualize and analyze ideas in a way that would have taken greater manpower in the past.

Product design is sometimes confused with industrial design, industrial design is concerned with the aspect of that process that brings that sort of artistic form and usability usually associated with craft design to that of mass produced goods

3.3.1 First design

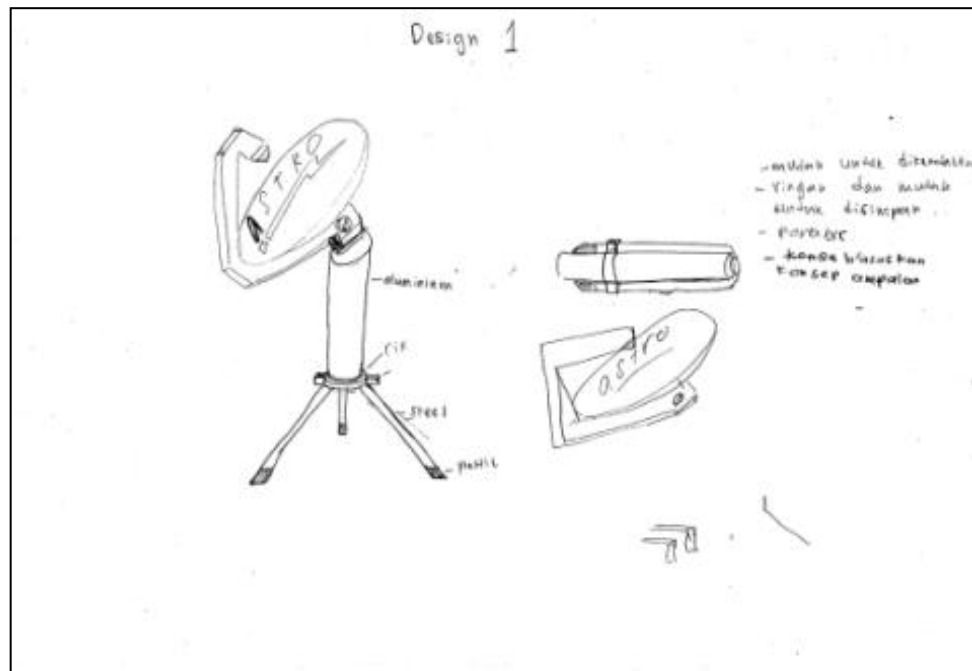


Figure 3.5: Concept 1

a) Advantages

This design is lightweight and easy to be stored. It is easy to handle. And this design also portable.

b) Disadvantages

This design cannot be set at different level and it is not be adjustable

3.3.2 Second design

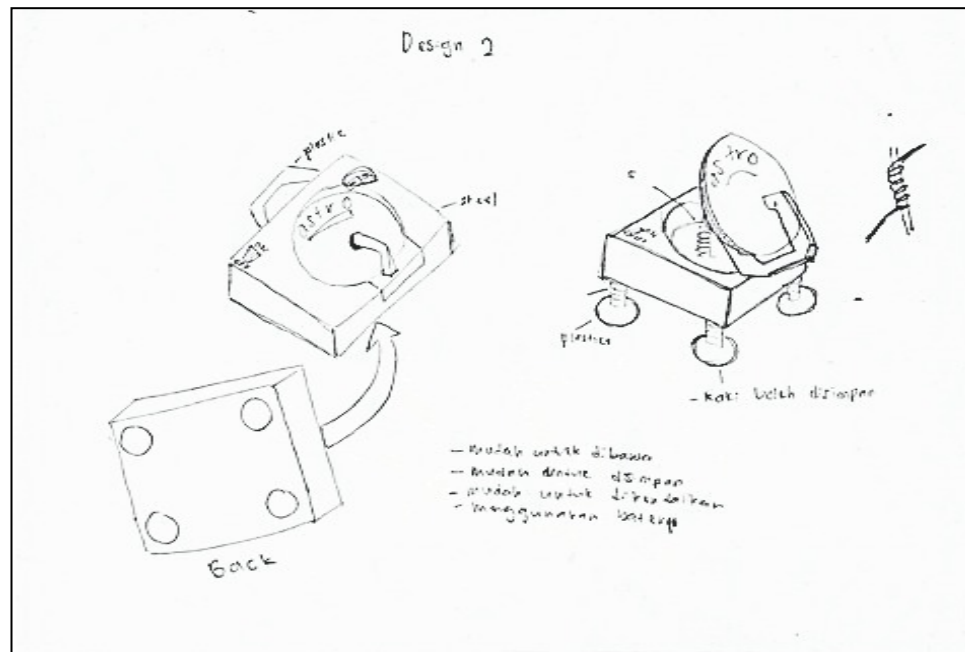


Figure 3.6: Concept 2

a) Advantages

This design is so light in weight so it can easy to carry everywhere and stores. This design also easy to handle.

b) Disadvantages

Have many edge and hard to fabricate because some part in this design is very difficult to build.this design have a high in cost.

3.3.3 Third design

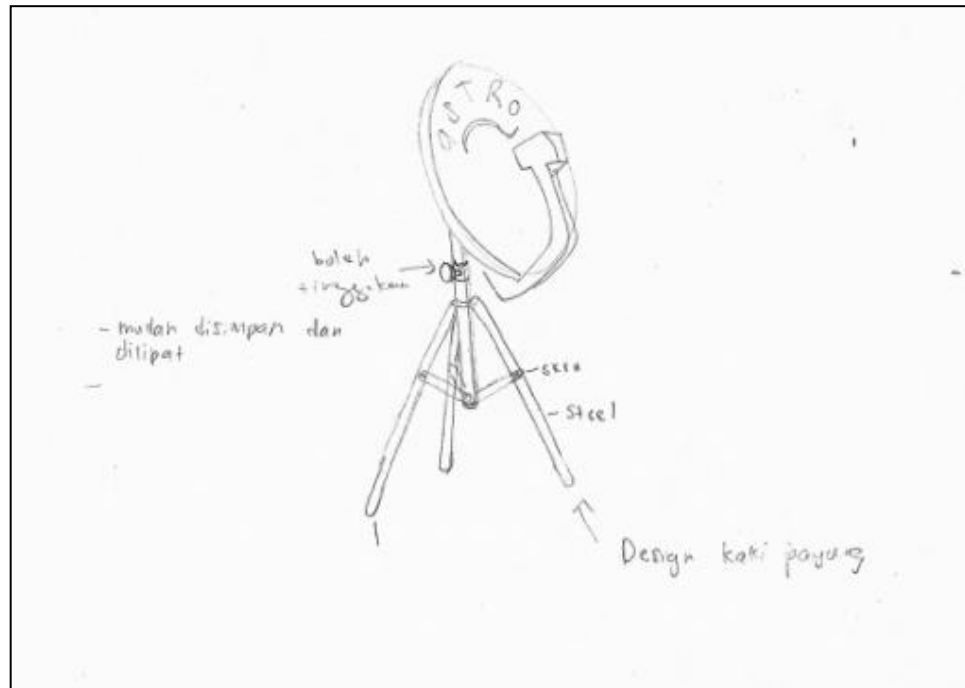


Figure 3.7: Concept 3

a) Advantages

This design is very simple because it use by only few materials. It also essay stored and to handle.

b) Disadvantages

This concept is not durable, cause this concept using steel .when the stand Astro make from steel, it can easily rust because it is using steel.

3.3.4 Fourth design

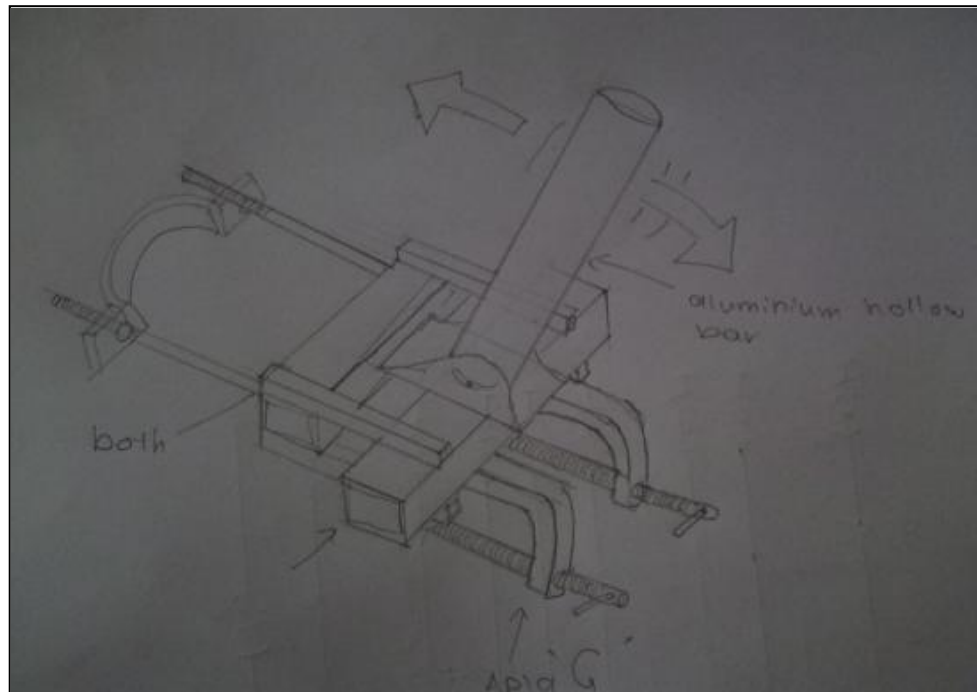


Figure 3.8: Concept 4

a) Advantages :

This design is easy to use in lower and high level. It is also easily stored and durable. This concept is so light in weight so it is easy to carry everywhere and stores. This design is also have clamps.

b) Disadvantages :

Cannot clamp on the thickness plate.

3.4 CONCEPT SCREENING

When making decisions about alternative systems that may be used in various situations in the workplace, a problem that is often faced is that there are many different people with many different opinions.

Concept Screening uses a simple matrix to assist in choosing between a number of options, as in the table below, and is typically done with a representative team of cross-functional people. Then examines each option (or 'concept') and compares it against each criterion to give it a relative score. Each option then has its score totalled to show its overall score relative to the base option.

If one option scores much higher, then this is clearly likely to be the best choice. However, before rejecting other options, you can consider how they may be improved. For example a low-scoring choice may have its score significantly increased at relatively low cost.

Table 3.1: Concept Screening

Characteristic	design				
	1	2	3	4	5(Datum)
Adjustable	+	+	0	+	0
Stability	0	0	0	+	0
Ease of manufacture	-	-	0	0	0
Ease of operate	0	-	+	+	0
Manufacturing cost	-	-	0	0	0
Safety on operating	0	+	+	+	0
Easy To Handling	0	+	+	+	0

Sum of (+)	1	3	4	5	-
Sum of (0)	4	1	4	2	7
Sum of (-)	2	3	-	-	-
Net Score	-1	0	4	5	0
Rank	5	4	2	1	3

+ = Better Than - = Worse Than 0=same as

3.5 FINALIZE DESIGN

From the concept screening, design number four is the best choice to make as final design. They are three figures below showing the design selected view in three views.

3.5.1 Solid work (design 4)

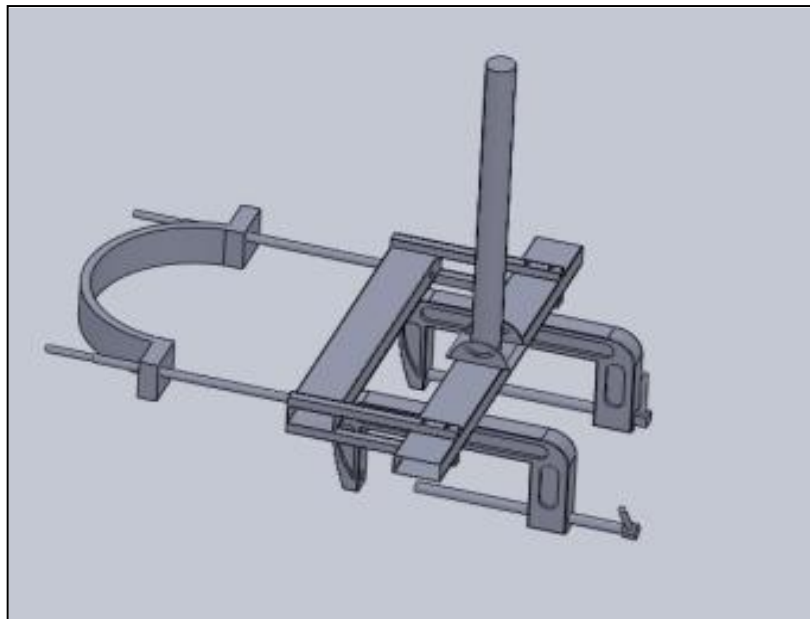


Figure 3.9: Design selected in Solid Work drawing

3.5.2 Exploded View

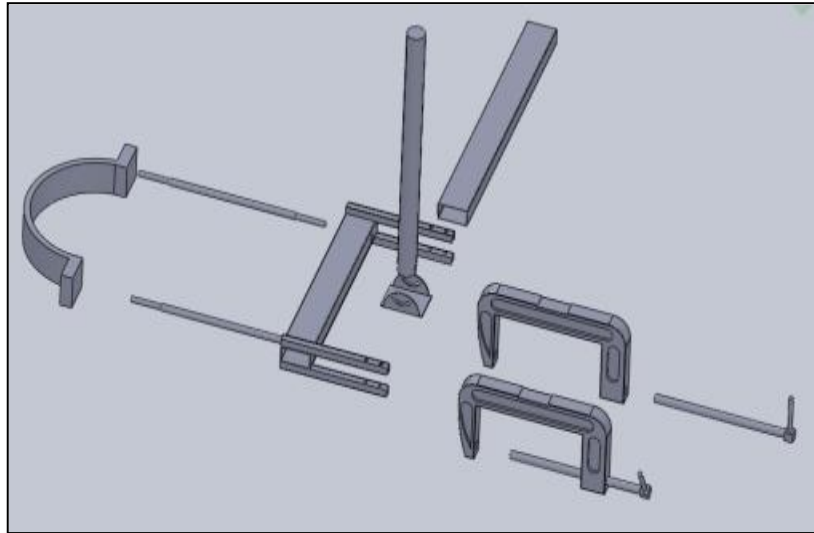


Figure 3.10: Exploded view selected in Solid Work drawing

3.5.3 Auto CAD and Dimension of Project

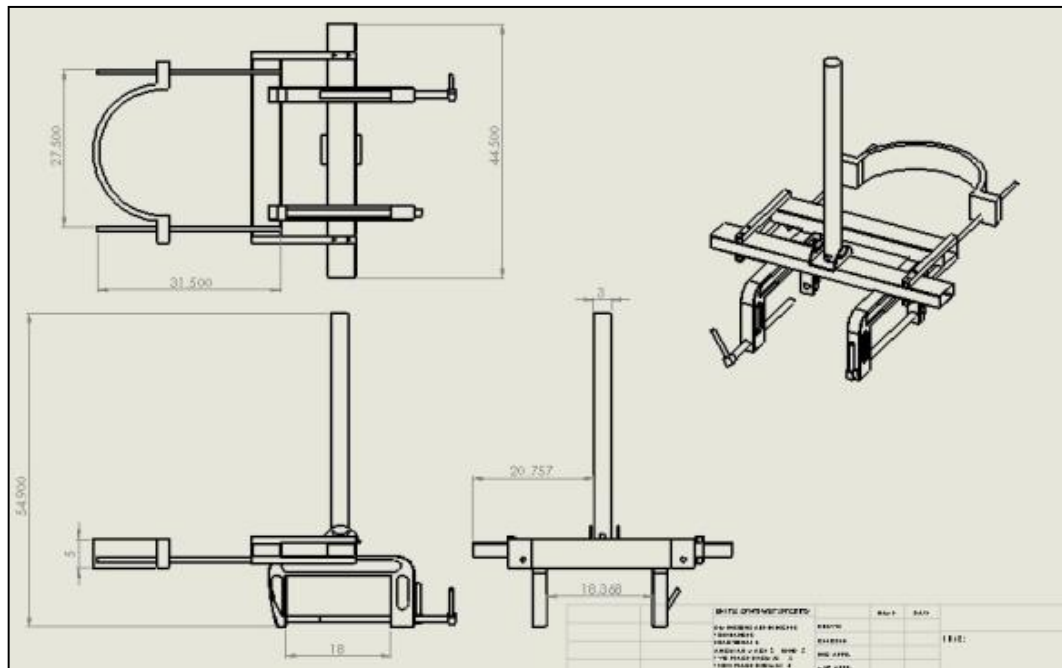


Figure 3.11: Product dimension

3.6 FABRICATION OF THE PROJECT

Fabrication is an act of making the products or objects from raw materials. the act of constructing something (as a piece of machinery). Metal fabrication is a value added process that involves the construction of machines and structures from various raw materials. A fab shop will bid on a job, usually based on the engineering drawings, and if awarded the contract will build the product. The fabricator may employ or contract out steel detailers to prepare shop drawings, if not provided by the customer, which the fabricating shop will use for manufacturing. Manufacturing engineers will program CNC machines as needed.

3.6.1 Measuring of the project

In projects, it is difficult to measure Quality of results during the project, but far easier once it is too late. Then, one of the most common measurements is defect. This is a classic case of measuring something not with clear, positive measures, but by unit counts of discovered occurrences of its flaws. While better than nothing at all, positive measures or indicators are needed. However, even projects that can be proven to deliver zero defects can be perceived, by customers, team members and your management team, to lack quality.

Thus, any method that purports to measure Project Quality must consider at least two aspects:

- a) Technical Quality, as measured by Defect Counts and positive counts or indicators.
- b) Perception of Quality, a subjective factor that can be measured by such indicators as Customer Involvement and Stakeholder Satisfaction.



Figure 3.12: Measuring

3.6.2 Cutting (Hand grinder)

In the context of machining, a cutting tool (or cutter) is any tool that is used to remove material from the work piece by means of shear deformation. Cutting may be accomplished by single-point or multipoint tools. Single-point tools are used in turning, shaping, planing and similar operations, and remove material by means of one cutting edge. Milling and drilling tools are often multipoint tools. Grinding tools are also multipoint tools. Each grain of abrasive functions as a microscopic single-point cutting edge (although of high negative rake angle), and shears a tiny chip. A hand grinder as is a tool which rotates a grindstone but in this case the grinding medium is a thin disc that can be used for either grinding or cutting metal.



Figure 3.13: cutting process (hand grinding)

3.6.3 Drilling

Drilling involves the creation of holes that are right circular cylinders. This is accomplished most typically by using a twist drill, something most readers will have seen before. The figure below illustrates a cross section of a hole being cut by a common twist drill:

The chips must exit through the flutes to the outside of the tool. As can be seen in the figure, the cutting front is embedded within the workpiece, making cooling difficult. The cutting area can be flooded, coolant spray mist can be applied, or coolant can be delivered through the drill bit shaft.



Figure 3.14: Drilling process for the project

3.6.4 Joining (welding)

a) Arc welding

Arc welding is a type of welding that uses a welding power supply to create an electric arc between an electrode and the base material to melt the metals at the welding point. They can use either direct (DC) or alternating (AC) current, and consumable or non-consumable electrodes. The welding region is sometimes protected by some type of inert or semi-inert gas, known as a shielding gas, and/or an evaporating filler material. The process of arc welding is widely used because of its low capital and running costs.



Figure 3.15: Used the Arc welding to make joining

3.6.5 Grinding machine

A grinding machine, often shortened to grinder, is a machine tool used for grinding, which is a type of machining using an abrasive wheel as the cutting tool. Each grain of abrasive on the wheel's surface cuts a small chip from the work piece via shear deformation.



Figure 3.16: Grinding process

3.6.6 Finishing



Figure 3.17: Project before finishing

a) Sandpaper

Sandpaper backings may be glued to the paper or form a separate support structure for moving sandpaper, such as used in sanding belts and discs. Stronger paper or backing increases the ease of sanding wood, so decent quality sand paper is much better than low cost and low quality sandpaper. The harder the backing material is behind the sandpaper, the faster the sanding, the faster the wear of the paper and the rougher the sanded surface.

For this project, we used sand paper P800, this is because it easy to make the surface finishing and it can make smooth and uniform surface.



Figure 3.18: Process finishing (sand paper)

b) Paint(spray)

Last step for this project will be complete by spray. Used the spray to make the project neat and attractive to people. Besides that, when this project coated by paint, it can make the project durable and resistant to rust.



Figure 3.19: final process (spray)



Figure 3.20: After finishing process

3.7 BILL OF MATERIALS

Table 3.2: Bill of Materials

No	part	Dimension(cm)	Quantity(cm)
1	Hollow square	44.5X5X2.5	80
2	Mild steel	1.2X1.2X7.9	32
3	Hollow bar	diameter 4.2 and deep 40	41
4	Bolt	diameter 0.8	4unit
5	G-clamp	16	2unit
6	Mild steel plat	15X12	13

3.8 PRODUCT DESIGN SPECIFICATION

(a) Product title

Simple Portable Astro Receiver Stand

(b) Purpose

To fabricate a simple portable astro receiver stand.

(c) New or special features

- Can be adjustable.
- Can clamp plate around 0.7cm to 18cm.
- Easy to store
- Have stability
- Can put at different place, lower or high place.

(d) Competition.

Will compete against standard Astro receiver stand that available in industrial.

(e) Functional performance

- Long life
- Can clamp plate around 0.7cm to 18cm.

CHAPTER 4

RESULTS & DISCUSSION

4.1 INTRODUCTION

This section is about, discuss mainly about the problems encountered during the whole project was been carried out and this chapter also discuss commonly Further Research about the project.

4.2 PROJECT PROBLEMS

4.2.1 Design Concept

In my old design or my first draft design, my design is big and heavy and difficult to equip in certain situation and place. The drawing and dimension is draw base on the finalized design and concept.

4.2.2 Material Preparation For The Project

There are materials that are not available in the laboratory. So some of the needed material is bought from the market or hardware shop. University should prepare List of available materials in the lab, So it is easier to search the material needed and otherwise it can be ordered from elsewhere there.

4.3 THE OBJECTIVE AND SOLVES THE PROBLEM STATEMENT

The problem statement for this project is Most people in Malay usually subscribe astro to watch and the most Astro stand in Malaysia cannot be carry and not portable.so this project will be carry on with the new idea, this product is very simple with clamp and have long bolt and it easy to put at lower and high place.

Beside that, It not so heavy, so people can easy to setup the stand everywhere.So the most people in Malaysia have an Astro in their home.So my project will be make Malaysian easy in daily live.

4.4 SIMPLE PORTABLE ASTRO RECEIVER STAND OPERATION

- i. They have 2 ways how to use this stand.
 - a) How to put on the pole
 - b) How to be affixed to the gate or corridors or somewhere outside the house.
- ii. We can choose what we want to used. This is because this stand can put at the pole or gate or everywhere can clamp put the small dirt at the gap between the brush and the dustpan. It depend to the environment

4.5 ANALYSIS AND FURTHER RESEARCH ABOUT THE PROJECT

The analysis is based on most houses in Malaysia is home to the flat. Which specifically statistics shows almost 45 -55% Malaysian people using the astro. Example research is provided in **APPENDIX A** .so this project suitable for Flat house, this is because it easy to clamp at the corridor and verandah.

4.6 RESULT

For the usage, the customer can use it anywhere by using all functions on it. It is because it has clamps that can clamp at lower and high place. Finally this is the output which had achieved after doing fabrication process.



Figure 4.1: simple portable Astro receiver stand

4.7 EXPECTED RESULT

The product has expected to operate successfully without problem and error and capability to give the best performance in its function to the user.

CHAPTER 5

CONCLUSION, RECOMMENDATION AND REFERENCE

5.1 CONCLUSION

The objectives of the project is achieved. This product already fulfill the scope and purpose successfully.

Thoughtout project, designing and fabricating the design simple portable Astro receiver stand by applying all the mechanical skills that required and suitable for our design.

Then,it have successfully improve the existing simple portable Astro receiver. this design is more durable and capable of enduring cold and harsh conditions. It capable to face cold temperature and can be placed anywhere, indoor or outdoor.

5.2 RECOMMENDATION

Although this product already fulfill the objective, scope and purpose successfully, but it still have weaknesses. After review and research is done, several recommendation was determined to make this product more effective and valueable.

5.2.1 Modify the design:

The design of the simple portable Astro receiver stand could be changed to be more manageable and easy to maintenance.

5.2.2 Add more function:

The functionality of this product could be added and improved so the it's usage is not limited.

5.2.3 Change the material:

Used the alluminium for all park.that is because alluminium are antirush.so the project will be durable.

5.3 References

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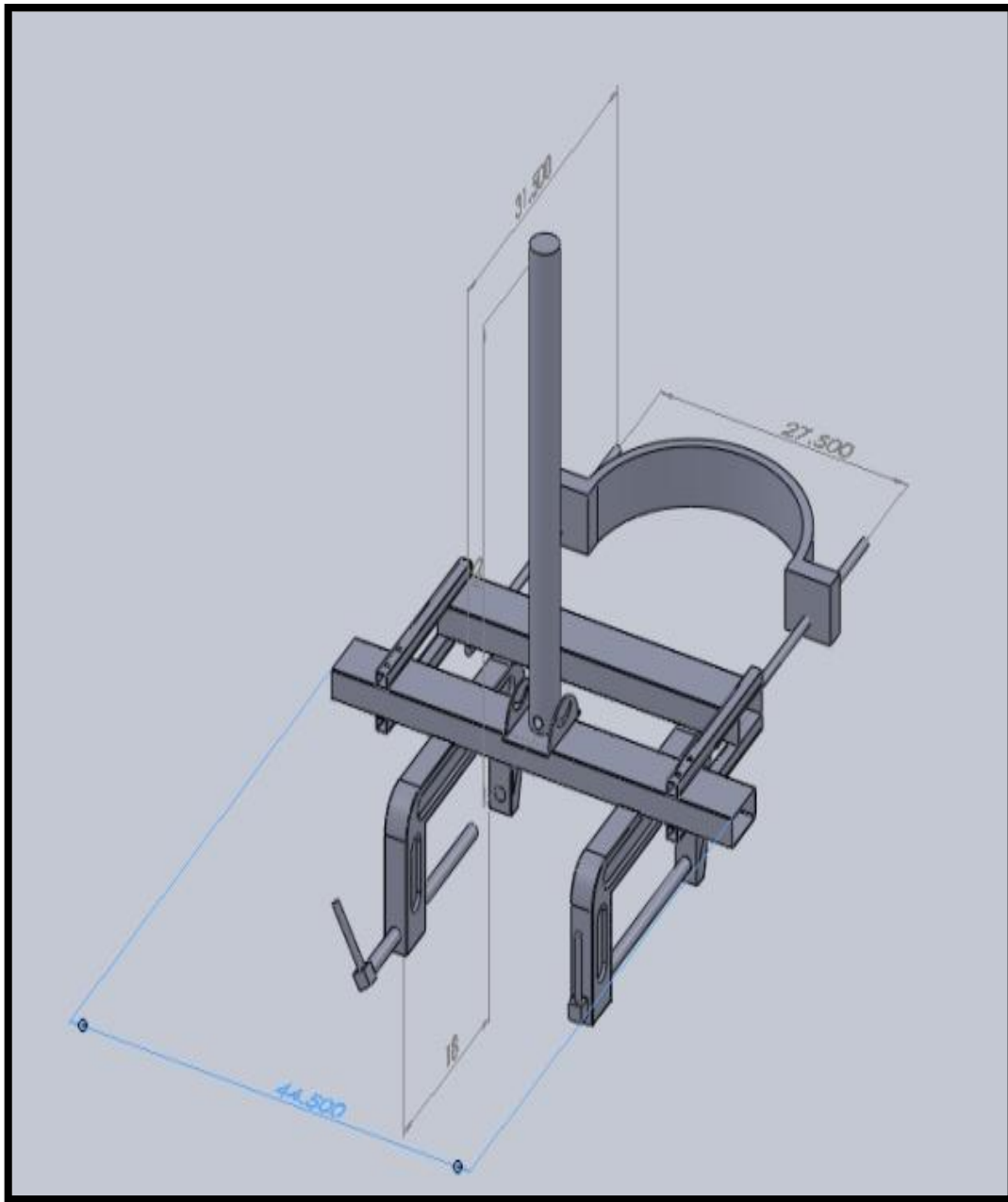
<http://www.radiospecialists.com.au/Satellite%20Broadband%20-%20Australia-wide.htm>

APPENDIX A**Latter Research Type of home and who have Astro**

NO	NAME	TYPE HOME	HAVE ASTRO Yes/No
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			

APPENDIX B

DIMENTION FOR SOLID WORK



APPENDIX C

SIMPLE PORTABLE ASTRO RECEIVER STAND

