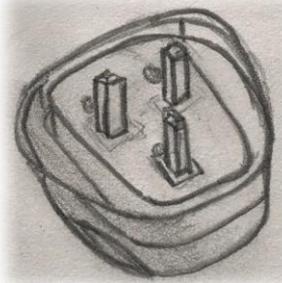


Above and below the line analysis

Above the line analysis of a 250V three pin plug:



A household three pin plug consists of three brass pins, one containing contact to the earth wire, the other to the neutral wire and the third one to the live wire.

Also, it is encased in a plastic casing which is usually injection moulded to keep the user safe and allow them to be safe while using it as well. Manufacturers use plastic because it does not conduct electricity well enough to cause serious electrocution to the user. Also the plug is made easy to grip to allow the user to plug in the plug and remove it from sockets comfortably.

Also when the plugs purchased, it comes with a manual that instructs the user how to use the product safely so that everyone can understand and use it properly.

The price of the plugs are 85p and also, the holes for the pins are buried deep inside below the surface of the plug to avoid any disruption when trying to plug it into a socket.

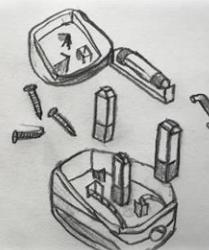
Below the line analysis of a 250V three pin plug:

One attribute that a three pin plug has is that the earth pin is longer than the live and neutral pin. This is because it is a safety measure to prevent electrocution as if there is any problem with the socket, the electricity goes towards the earth pin first rather than the user.

The brass that the pins are made from can only be obtained through mining. This means it releases CO₂ into the atmosphere and therefore contributing to global warming. On the other hand it helps the environment because it can be recycled.

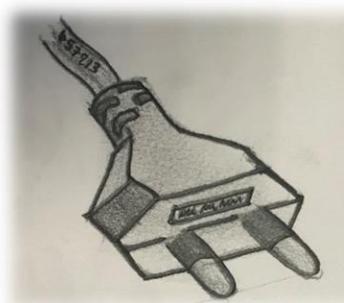
Also plugs are made through injection moulding meaning that it saves them time having to do individual carvings on the casing – rather the carvings are imprinted while its injection moulded.

Disassembly of three pin 250V plug – above the line analysis:



Inside the plug, all the metal parts are far away from each other to avoid any risk of a short circuit. Also all the wires are labelled by colour so that the user can see where to attach each wire if needed – as well as the wires also being easily detachable and reattachable.

Inside the plug, there is also a cable grip which stops the main cable from moving or stretching causing rips in the cable. Also, where each wire meets the brass pins, there is a screw that clamps the wire down so that it isn't detached from the pins that enter the socket.



Above the line analysis of a two pin plug comparison:

This laptop two pin plug consists of two pins made from brass and plastic that are able to go into sockets. The pins are rounded meaning they can only fit into adaptors as the majority of sockets are for three pin rectangular plug pins. The plug casing is melted together rather than held together by screws.

Unlike the three pin plug, the casing of the laptop charger is rubber, while the three pin plug casing is made of plastic. Both plastic and rubber do not conduct electricity well making them a good safety protection.

furthermore, at the back end of the plug, a flexible rubber casing is placed over the wire to allow the wire to bend but not too much to prevent breaking in the wire – therefore preventing partial contact.

Below the line analysis of a two pin plug comparison:

The raw material that rubber is a “white milky fluid” also known as latex which is extracted from the latex vessels of rubber trees. This means that it has a negative effect on the environment as it requires trees to be damaged in order to get the rubber.

The plug casing is Injection moulding of liquid silicone rubber. They are resistant to fire which makes them hard to melt but very durable and heat resistance reducing the chance of fire.

The temperature needed to melt copper is higher than the temperature needed to melt zinc and then evaporates. Therefore, the copper is melted separately and then heated zinc is added in small pieces in order to make the brass pin for the plug.

Disassembly of alternative two pin plug – above the line analysis comparison:



A two pin plug has two pins that are able to go into a socket.

These pins are connected to the live and neutral wires. Two pin plugs are a lot simpler to set up than a three pin plug as the wires are separated in rows to make sure the wires don't touch which is similar to the three pin plugs.

The only difference is that the neutral wire doesn't have a pin extruded out of the casing.

Also the earth wire is connected to the casing of the product. This is because the casing might become live so the Earthwise is meant to carry the electric charge away from the user.

Commercial processes used for a three pin plug

Injection moulding:

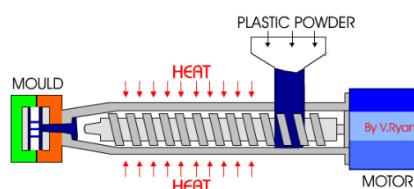
Injection Moulding is one of the most popular processes for manufacturing plastics or rubber products. This is because it is one of the fastest processes that is used to manufacture relatively large amounts of identical goods that are precise. The most common type of material used for injection moulding are thermoplastics.

Steps:

- In the injection phase of the process, granules of thermoplastics are placed into a hopper – which is at the top of the injection unit.
- The granules then fall into a chamber where they are then heated by a heater until they melt into a liquid state.
- In-between the heating chamber there is an automated mixer (usually shaped like a screw) which mixes the molten granules of thermoplastics – giving it a consistent texture and is then pushed to end of the chamber for injection.
- At this point, the plastic is in a molten state and is injected into the mould through a tube with equal pressure and speed – controlled by the mixer.
- After this, there is a pause in the process, which is often known as dwelling. When the molten plastic has been fully pushed into the mould completely, a pressure is applied to force air pockets to close - making sure all of the moulds cavities covered.
- The molten plastic is left to cool in the mould until it is solid.
- The clamps holding the two halves of the mould together open and the product formed is ejected.

Advantages and disadvantages:

- Injection moulding allows for workload to be cut down
- Newer machines cost \$375,000 to \$400,000.
- Saves money and time in during mass production
- Designs will have to be created before any process



Reasons they have been used for specific products:
Using injection moulding for a product such as a chair is effective

because: chairs are mainly mass produced, so it would save the manufacturers money, it can all be made with minimal parts (saving material) and the chair will be identical to the original design.

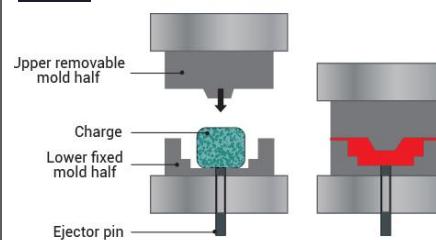
How this process can be used in my designing:

There are potential uses for injection moulding in my designing such as in my study desk tidy context. Injection moulding would be efficient for a lamp shade made out of plastic as it produces a consistent product each time as the mould remains the same. Furthermore, it can be used when creating complex forms as those of my trophy case concept. This process would be effective as it will allow me to make complex forms quicker while using less materials.

Compression moulding:

This sort of moulding is commonly used on materials such as thermoset polymers such as melamine formaldehyde. Compression moulding used to make mostly household objects such as light fittings and plugs.

Steps:



- Firstly, a piece or 'slug' of thermoset plastic is placed into the pre-heated moulds in line with the top and bottom halves of the mould.
- The hydraulic press is then activated and the top half of the mould is brought down and pressure is placed on the thermoset plastic to make sure the thermoset plastic takes on the shape of the mould.
- The moulds remain shut together to make sure the plastic cools and sets to ensure that it stays in the shape it has been compressed into. After the plastic has cured, the hydraulic press releases the pressure and the mould opens and the product is removed.
- Any excess polymer is cut off and removed and disposed of.

Advantages and disadvantages:

- Tools cost less because the process does not have an injection or transfer cycle.
- Compression moulding is not a precise way of manufacturing a product.
- It is good for small production runs as it makes small parts quickly and cheaply.
- Any waste thermoset rubber or isn't able to be melted down and reused.

How this process can be used in my designing:

As this process is effective for smaller parts, it would be fitting to use for a design such as a pencil holder in my study desk tidy concept. This is because all that is needed is a block of thermal plastic between two halves of a mould to be compressed – creating cavities for items like pens and pencils to enter.

Reason they have been used for specific product:

When compression moulding is used on a product such as a plug case, it is beneficial because it's a small product with a simple form, it isn't very accurate which is why it can be used on a plug as the user isn't seeing the inside and any waste material used can be cut off, reformed and used again for another plug.

Extrusion:

The manufacturing process of extrusion with plastic is a method of high-volume manufacturing where the raw plastic is melted and formed into a continuous shape.

Extrusion is used to produce items such as pipe or tubing, insulation stripping for weather, railings, window frames and wire insulations.

Steps:

- In the first stop, the raw plastic materials usually in granules, pellets, or powder is loaded into a hopper. After that, it is moved into a long heated chamber shaped like a cylinder - called an extruder. The plastic is then moved through this chamber while it is being heated by a spinning Archimedean screw.
- When enough of the polymers is melted, a hydraulic ram pushes the Archimedean screw in order to force the heated polymer through a steel die which determines the shape of the extrusion (it's different for each product).
- When the polymer is being extruded from the die, it's moved towards a conveyor belt which allows the extruded polymer to cool. There are two ways cooling can happen, by air or water.
- This process is similar to the process of injection moulding with a minor difference which is the melted polymer is forced through a die rather than placed into a mould.

Advantages and disadvantages:

- It has a limited complexity of parts.
- Extrusion has a high production volume scale.
- It has a uniform cross-sectional shape only.
- High speed and high volume at low production cost.

Reasons they have been used for specific products:

When making products such as pipes, extrusion would be used because, it has a uniform cross section – meaning all parts of the pipe will be symmetrical and larger pipes can be made quickly as well.

How this process can be used in my designing:

Extrusion is often used to hollow products with a constant cross-section such as a pipe. Upon this thought, I believe that a possible area this can be applied to in my work is in my context area of a trophy case. Using extrusion for the glass panes would be effective as it would ensure that the surface is smooth and has a constant cross-section area – allowing it to fit into its joining area properly.

Overall summary:

From this pieces of work, it is evident that analysing below the line is important because products such as the plug is simple and designed for everyone to use, but yet multiple complex processes that take place before it can be produced. This can help me when I am analysing my work as I have to pay attention to how it is manufactured, the intricate processes it requires and also the efficiency of the product relative to cost, time and speed.

Initial Designer Research

History of Le Corbusier

Le Corbusier is a famous architect who was known as Charles-Edouard Jeanneret-Gris at birth. His place of birth was in Switzerland on the 6th of October 1887. His work began to expand when he moved to Paris in 1917 and changed his name to Le Corbusier – creating a new persona for himself. Le Corbusier constructed most of his work with steel and reinforced concrete – using elemental geometric shapes. He also painted and in his paintings, clear forms and structures were emphasized, which reflected his love of architecture.

At age 13, Le Corbusier left school to join the Arts Décoratifs where he was taught the history of art and the natural aesthetics of art nouveau. He intended to become an artist but his teacher L'Eplattenier insisted that he also study architecture.



At age 25, Le Corbusier designed his first house which is known as the 'villa Jeanneret-Perret' found in his home town in Switzerland (La Chaux-de-Fonds). When Le Corbusier moved to Paris in 1917, he began work as an architect with concrete structures under a government contract. He also spent quite a lot of time doing disciplined painting.

Le Corbusier's Work

Villa SAVOYE:

The Villa Savoye is one of Le Corbusier's most prominent works as it is well appreciated and looked highly upon. It is a perfect model of modernist design architecture. The sleek geometry of the white living space, with its elongated / stretched windows which are braced by multiple slim pillars with a glazed entrance. The building was completed in 1931 and was a groundbreaking design as it used, reinforced concrete which allowed for fewer load-bearing interior walls – which allowed it to be an open-plan design.

Notre Dame du Haut, Romchamp:



The Notre Dame du Haut, Romchamp is one of the first Modernist churches that was built. It did not totally change the structure of the traditional churches

Architectural structure as it kept iconic figures such as the stained glass windows and a high ceilings, which symbolically drew the eye and the mind towards heaven.

This design has a quite abnormal look to it as it had geometric shapes and figures in it but has a strange curvy design to the roof – which could have been inspired by Le Corbusier's knowledge of the nature of art nouveau.

Béton Petite Lamp:



The Béton Petite Lamp is a very unique design idea by Le Corbusier and it is a lamp made out of reinforced concrete.

It makes good use of simple curves and elongated geometric shapes such as circles, cones and rectangles.

The lamp was designed in 1952 for outdoor uses but was later Nemo reduced the size of the lamp so it could be used as a table lamp.

Le Corbusier



Le Corbusier's influencers:

Le Corbusier was influenced by some other artists, designers and architects as well, such as some of the major designers of the International Style – including Ludwig Mies van der Rohe and Walter Gropius. These men were some of the people he worked with that influenced his work.

Also, Le Corbusier collaborated with Amédée Ozenfant and with his cousin Pierre Jeanneret in order to build the pavilion. This was to depict his ideas alongside with Ozenfant to create a small pavilion expressing his idea of the future urban housing.

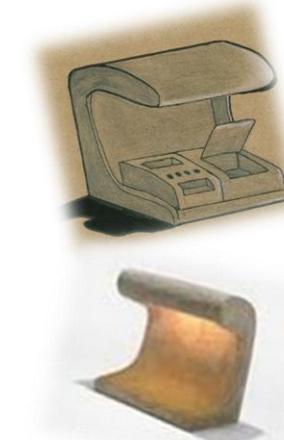
Pavilion – built by Le Corbusier, Amédée Ozenfant and Pierre Jeanneret.

Simple geometric shapes such as rectangles

Bright colours used to make the design look modern and more spacious.



Throughout this whole structure, only three major shapes are used, rectangles (irregular quadrilaterals), triangle and cones.



Le Corbusier influence on my work

Le Corbusier inspired my initial design idea for a desk tidy / lamp shade though the 'Béton Petite Lamp'.

I integrated two desk tidy pieces such as an openable drawer and a pencil and stationery organiser into the base of the Le Corbusier styled lamp.

I decided to integrate this particular work into mine because of its unusual shapes made up of elongated regular shapes – as I liked the idea of modernism mixed with an art nouveau style.



In this piece of work, I have used cubism in every aspect. This is because all the shapes in this are made up of cubes although some are elongated into rectangles.

Le Corbusier's paintings and buildings used mainly cubism, modernism and international style. This all included the use of basic geometric shapes placed at angles to each other to create something original.

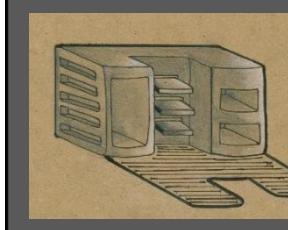
The Villa Savoye inspired this piece of work especially because of the use of sharp corners and wide glass windows which I have integrated into my trophy case.

Peer Feedback

Section Overview:

In this piece of work, I will be taking my initial design ideas, and giving them to clients in order to get feedback on how it can be improved to fit my target market and design movement influences on my design. In order to achieve this, I must take in all the feedback concerning my designs aesthetics, function and design inspiration. I will then use this information to develop my idea while moving forward with other primary client research to strengthen my ideas.

Idea 1: Gaming storage unit



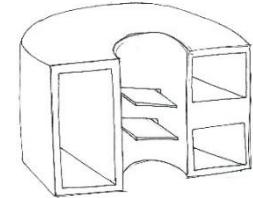
Ishan's Feedback:

After a first look at this design, it seems to be a desk tidy with multiple functions such as holding an array of items.

The design could be also be adapted to hold gaming consoles and is other accessories.

I think that the target market of the product would be students or people who regularly sit down at a desk. This product will most likely be used on a day to day basis in a home, work office, bedroom or behind a counter in a shop."

"From looking at the product, it seems to be inspired by a postmodernism movement because of the use of sharp lines."



James' Feedback:

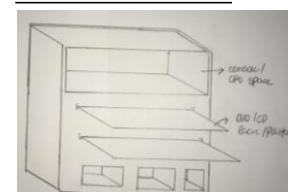
The project aims to provide an organised method for storing a games console and accessories. In my opinion, the target audience for this project is a gamer aged 10 years old and above. A product like this would usually be used daily as most members of the target market game frequently. This product would be used indoors such as a living room or bedroom – placed on top a table.

I believe this project is Art Deco-inspired because it used geometric lines and shapes as well as influences from cubism.

I like the numerous compartments the product offers in order to keep the items well organised, as well as the vents to keep the console cool and add detail.

In contrast, I would like the product to be more elaborate while maintaining its functionality.

Ibrahim's Feedback:



The unit aims to store, protect and organise gaming consoles and gaming accessories. The target audience is gamers. This unit will probably be used daily or several times a week as its targeted towards gamers. I believe this product might be used on top of the gamers desk.

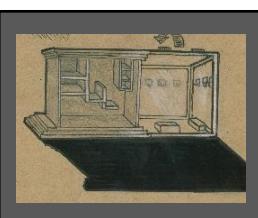
The rounded edges mean that its user friendly and the consoles is also protected from falls. Also, all the parts of the product are visible and easy to access. The vents for the console compartment are good for preventing damage to the cabinet as well as the console.

Improvements:

From this feedback, I will consider James' feedback as he has picked out specific details that I believe can improve my idea. I have the way he has suggested that I take up less room on the horizontal plane but use more space on my vertical plane. This will keep the products function while saving space. Also, James' idea proposes I should place ventilation on both ends to improve the ventilation system.. Furthermore, Ibrahim's design suggests I should include a few smaller compartments items like controller and other small items.

Summary: Overall, I believe that this initial design idea from this concept has the potential to grow. To improve it further I will need to take my peer feedback into account as well as to conduct a target market research for this area.

Idea 2: Trophy case



Ishan's Feedback:

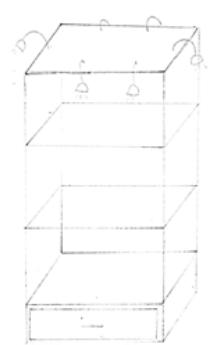
In my opinion, the aim of the idea is to showcase the clients trophies.

The target audience is very broad because anyone can win trophies for anything, that be it from sports or academic achievements, there isn't an age restriction. The product is most likely going to be put in a bedroom, living room or home office space, just somewhere it will be visible to visitors and the customer.

The design looks like it was inspired by maybe a 'De Stijl' like design movement but is not clear as the design sketch does not include colour.

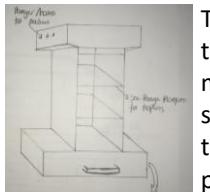
In my opinion, the idea takes a unique perspective on the traditional trophy case which is very functional and boring.

James' Feedback:



This project is aimed to provide a piece of furniture which displays trophies of an individual. The project is aimed at sports people but could be used by those of success in other areas such as degrees. This product would be in constant use as it displays items but may only be opened once in a while. This product is most likely to be placed in a hallway for people to see as they walk past. I think this project is influenced by the Memphis movement as it has an abstract form while also providing functionality. I like the detail implemented on the top and base of the design as well as the numerous shelving options which allow the trophies to be displayed in a number of ways. However, a more transparent material could be used to allow more light into the display and enable sight of the trophies at all angles.

Ibrahim's Feedback:



The aim of this product is to organise and protect trophies which have been won. The target audience will most likely be for people who take part in competitive sports. I believe that the cabinet would be used every time a trophy is won (when there is a competition). This product will most likely be stored

in the sportsman/woman's room on a platform or even on a wall. This product is most likely inspired by modernism. There is plenty of storage space for trophies and it is attachable to the wall meaning it is protected from damages it can come in contact with on the floor. Also, larger trophies might be able to fit inside the shelves rather than the glass casing.

Improvements: After carefully examining my feedback, I will aim to improve this design by focusing on one main design style of De Stijl. This decision is inspired by Ishan's feedback where he suggested that my product has a similar look. This will be done by researching into the colours and design patterns of this design movement. Upon consideration, I will add a drawer section to my trophy case as Ibrahim and James have both suggested that it is needed in my design through their improved sketches.

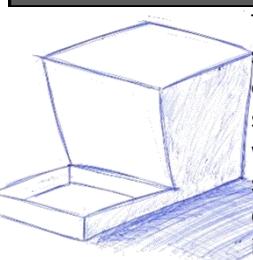
Summary: In conclusion, I will focus this concept on the De Stijl design movement as it has attributes that can strengthen my design as it uses a modernist approach in terms of its shapes and bright colours to captivate people's attention.

Idea 3: Lamp / desk tidy



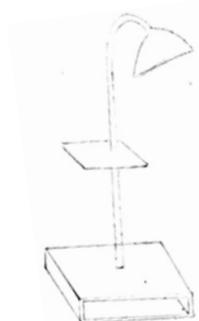
Ishan's Feedback:

From looking at this design. I believe that its main aim is to provide students likely at university a storage space as well as a shaded lamp. This makes the target audience quite focused which is good as it allows room for the designer to make the product fit students perfectly.



This product is most likely to be based on top of a student desk in their room. It would likely be used every day or frequently as it provides light and storage. I believe that the product is inspired by the work of Le Corbusier as he has a concrete lamp similar to the shape of the lampshade in the design. I quite like the way the product has multiple functions in such a small amount of space which is good for the student.

James' Feedback:



The aim of this project is to provide both light to work under whilst keep a workspace tidy and organised. This product is intended for students of all genders and ages as this piece of multifunctional furniture saves space and provides services. Students have a lot of equipment that needs to be tidy plus get a load of work so it would be used daily. The product would be used in a workspace and balanced on top of a desk. The product seems to be inspired by the Bauhaus design movement as it uses simple curves and geometric shapes.

I like the multifunctional aspect of the design as it saves space. I also like the minimalist shape and design because it means it will fit in with most decors. I do wish however that the storage spaces were a bit larger.

Ibrahim's Feedback:



I believe the aim of this project is to organise stationary and provide light. The target market will probably be everyone but with students as its main focus. This product can be used in offices or in students rooms. For this reason, the product will be used everyday as it is meant to provide light and storage. The design looks like it was inspired by Memphis due to the unusual combination of shapes. This project will allow students to work at a desk while keeping it tidy which is one of my favourite attributes about the design.

Improvements: All my feedback seems to lean towards removing the curved Le Corbusier styled lamp shade but rather using a lamp which is flexible in terms of what direction it can face. As of this, I will consider placing joints in my lamp arm to allow it a greater range of movement rather than a fixed light source. Additionally, I will be improving the accessibility of the storage system underneath the lampshade. This is as it is hard to reach as the lamp shade hangs over it.

Summary: After reflection on this concept, it's clear that the storage system with the lamp doesn't have to be attached. As of this, I will consider making parts of it detachable for a better function.

Target Market - User Needs

Section Overview: Getting your target market right is an important process when developing an idea. This is why I will be displaying the research I have conducted to zoom in on what type of market each concept will attract. This will consist of my intended target market based on my implementations in my design that may attract certain kinds of people. Furthermore, this section will cover a client profile for each concept, other possible clients that could be attracted to a product of its kind, and also will cover statistical data on the type of people that may be interested in my context area and also the preferences of focus groups.

<p>Sports trophy display</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th>Response</th> <th>Percentage (%)</th> </tr> </thead> <tbody> <tr> <td>Not Important %</td> <td>9</td> </tr> <tr> <td>Yes %</td> <td>73</td> </tr> <tr> <td>No %</td> <td>18</td> </tr> </tbody> </table> <p>Potential target market: As time has passed, many ways of displaying awards and trophies have been invented and used. My main objective here is to market a product that displays awards and trophies but is also multi-functional in order to increase the range of my target market. Potentially, my target market is ranging from athletes and people involved in sports to even, academic achievers looking to display their achievements. Mainly, I have chosen to focus on athletes / sportsmen/women, who are currently still participating in their respective sports/ events. This is due to the accumulating number of awards they are continuously winning – meaning they will need this product if they want to display their achievements. To performers who are achieving lots of awards, it will be in mind to organise it well, and this designs a solution to the issue.</p> <p>Client Profile: (Joshua Oshurindie – athlete) Joshua is a 17 year old athlete that competes nationally in the 100m sprint and long jump. He is constantly training in order to improve his ability. Outstandingly, Joshua has achieved a lot of medals and awards after his dedication to his events. From my discussion with Joshua, he is proud of his achievements and wishes to display them for intrinsic motivation and also to show others. He believes that my idea would be useful to him as he currently doesn't have a method of displaying his awards.</p> <p>Potential Locations: A potential location would be a school hallway with a cavity for the trophy case to slot into – to reduce the amount of space it takes up in the hallway.</p> <p>Potential clients: Requirements: A display cabinet that is easily accessible in order to the display awards he achieves, both for his sports and academic awards such as football trophies, medals and certificates for academic achievements if necessary. Requests: The facility to store the awards in order to keep it away from damage or theft. Furthermore, he wants the options to mount the trophy case on the wall or place it on a platform if needed. Principles: Flexibility is needed in the design because not all the products he will store in there will be the same type of trophy – taking into account the size or shape of the award.</p> <p>Summary: After picking out an appropriate target market with consulting a client, subsequently, it is clear that tweaks will need to be made to my design to properly attract the attention of my chosen target market. By consulting my clients and asking him what he would prefer in the design, and how it can be improved to suit his purpose of buying the product.</p>	Response	Percentage (%)	Not Important %	9	Yes %	73	No %	18	<p>Gaming organiser</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th>Response</th> <th>Percentage (%)</th> </tr> </thead> <tbody> <tr> <td>No: 57 %</td> <td>57</td> </tr> <tr> <td>Yes: 43 %</td> <td>43</td> </tr> </tbody> </table> <p>Potential target market: When it comes to gaming, people often overlook the fact that it gets disorganized quickly. Mostly, gaming organisers are not tailored for gaming only which makes it difficult to find one that fits a client's specific needs. From this project I believe my target market is very specific to people who game for a living or play a lot of games at least 4 times a week – and need a space to organise their accessories. In general, there are many gamers who wish to place their consoles in a secure environment to prevent damage while also organising their other gaming accessories such as: headphones, controllers and other cables. It's a key factor to take other successful designs and incorporate them into a single design in order to meet the demands of a large majority of clients.</p> <p>Client Profile: (Peter Oni – gamer) Peter is a 17 year old student who has a passion for gaming. Besides from gaming, Peter has an interest in football and plays it weekly in order to keep fit. Furthermore, Peter collects games ranging from 'Call of Duty' to 'Fortnite' is his quest to provide entertaining videos of him playing them. Peter wishes to store the games he has completed safely in an organised fashion. It would be suitable for him to have a separate place to keep his games from his books as work piles up quickly. From my conversation with Peter, he focused more on the area of storing accessories for his gaming – which is unique as the products main function is to protect and organise consoles and DVDs.</p> <p>Potential Locations: This product would fit in where the CPU currently is, as it allows them to store the CPU along with other equipment compactly.</p> <p>Potential Clients: Requirements: A separate area to place his game collection in a condensed area – in order to keep his gaming equipment away from his academic work. Requests: The ability to keep his working station / desk tidy organised – leaving plenty of space for any other items he wishes to leave on his table so it doesn't get misplaced. Principles: Damage to his gaming equipment and games would defeat the point of organising his equipment, so therefore as well as the product being able to organise, it needs to keep the contents away from damage.</p> <p>Summary: After inquiries of my product, I have identified issues that will enable me to develop my design following the needs of the client. In conclusion, I will need to improve the safety precautions in my product in order to make it appropriate for organising high value items and accessories.</p>	Response	Percentage (%)	No: 57 %	57	Yes: 43 %	43	<p>Study Desk Tidy</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th>Response</th> <th>Percentage (%)</th> </tr> </thead> <tbody> <tr> <td>Lamp only</td> <td>39</td> </tr> <tr> <td>Desk tidy & lamp</td> <td>53</td> </tr> <tr> <td>Don't need one</td> <td>8</td> </tr> </tbody> </table> <p>Potential target market: It is essential for storage units to have similar parts to other products that are on the market. This is in order to provide what other good products provide while adding extra parts that will make a customer prefer the product. These include things like the product being: accessible, displayable, reliable and safe from water damage. The target market I'm focusing on includes students and mainly university students and young workers that deal with a lot of data. Students seem to find it annoying having to buy a desk organiser and then, later on, look for a lamp to provide lighting. So from this data, I have integrated a lamp into the desk tidy to fulfil this need.</p> <p>Client Profile: (Samuel Aigbotsua – computer scientist) Samuel is a 24 year old who has just finished university which makes him a good client as he fits into both of my main categories of a young worker and university students. Samuel has is looking for a lamp and equipment / file storage unit that goes well in his room - which has a modern design like most rooms nowadays. From my discussion with him, he wishes to keep his laptop desk tidy as there are a lot of files and lose utility items like hard drives, cables and staplers. He concluded that my product has attributes he needs such as a lamp and space to store lose utility items.</p> <p>Potential Locations: A potential location would be a school students desk. It would fit in well as it allows them to store their equipment while providing lighting when it is dark.</p> <p>Potential Clients: Requirements: A compact area to place lose items on his laptop desk. This is in order to keep his work tidy so that files don't get lost and other equipment he needs on a daily basis. Requests: As well as proving a compact storage unit to keep work and equipment organised, he requires a small light source to use when it's dark and he only needs a small back light while watching TV or doing something in his spare time. Principles: The products must be a reasonably priced, medium sized, modern design and keep things tidy to create space for his laptop.</p> <p>Summary: From this study, I have identified new issues with my product that I can adjust in order to show resolve to the improvements that I have been given from my discussion with a client. Specifically, it has led to consider developing the function of the desk tidy in order to suit the 95th percentile as that way the majority of useful functions will be implemented.</p>	Response	Percentage (%)	Lamp only	39	Desk tidy & lamp	53	Don't need one	8
Response	Percentage (%)																							
Not Important %	9																							
Yes %	73																							
No %	18																							
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Don't need one	8																							

Questionnaire

Section Overview: On this page, I will be summarising the needs and wants of my target market which was obtained through my detailed questionnaires— which was tailored to extract as much information from the target market using some unique questions. From this information I gained, I will go on to use it to improve my designs, so that its functionality is improved, they works ergonomically with the clients and also so that they improve other problems found in previous designs.

Sports trophy display

Reason of investigation:

In this area of design, I wish to obtain more information on what is needed to satisfy my client. This includes things such as allowing the sports display unit to be **ergonomically and aesthetically friendly** which includes: being able to display awards effectively while not being in the way of the user, being easily accessible, suiting the design preference of the client and also providing sufficient room for the client to use the display too how they wish.

Samples from questionnaire:

Which is more important: the ability to display, lighting effect, aesthetics or ergonomics?

Response: "To me, the aesthetics of the design is most important to be because it is a display case for awards, this means that the design of the trophies has to compliment to the design of the display case."

Do you agree with the following statement? – "Older sports people want to display their trophies more than younger sports people"

Response: "As a young athlete, displaying my trophies isn't as important as training and participating in the sport so I can agree with this statement as I would want to display my awards after I feel I have achieved enough."

What type of material would you prefer a trophy case to be made from?

Wood Metal Plastic Other polymers (acrylic, rubber)

Result: "6/10 chose wood - 2/10 chose metal – 1/10 chose plastic and 1/10 chose other polymers"

Users Need and wants:

- A **post modernist** type of design such as De Stijl to compliment the modern looks of trophies and medals.
- The clients prefer a **wooden** trophy case.
- An **older age range** should be targeted as they will have more awards to display.
- The display scheme should allow the **user flexibility** in how they display items.
- Furthermore, users want the design to be **multi functional** – so it can store items like certificates as well as trophies and medals.

Summary:

From my investigation, the majority of people preferred a trophy case to be made from **wood** over the other choices and the common reason was that it makes the trophies stand out more. As of this, I will be making this product out of mainly wood.

Furthermore, I have deduced that I will need to target my design towards **older sports people** as they have more trophies to display and are also more likely to make use of it as they are likely to have their own space and freedom of how to lay it out. Also, I will aim to make the design **multifunctional** so more items can be displayed from it, also I will allow a **flexible display** scheme to give the user freedom in how they wish to display their awards.

In conclusion, this investigation as brought me to realise that my design will need a more modern look to complement the design of the trophies the client wants and to target the product towards an older audience of sports people by adding to its functions.

Gaming organiser

Reason for investigation:

The reason for my investigation of the gaming organiser is to improve the quality of the product while as well as incorporating multiple functions that the client requires into it. The gaming organiser is meant to accommodate the clients gaming accessories while also remaining **compact** – to reduce the amount of space it takes up.

In order to improve the quality, I will find out what flaws clients have noticed in existing gaming organisers and use that information to improve the functionality of mine, also I will find out what material best suits the client and also what age range and price range it suits.

Samples from questionnaire:

What generation of gamers tend to buy physical copies of games rather than purchase it online?

Age 7-11 Age 12 -16 Age 17 – 25 Ages 26 and above

Results: "0/10 chose Age 7-11, 2/10 chose age 12 -16, 6/10 chose age 17-25 and 2/10 chose ages 26 and above."

Is there any problems you had with previous gaming organisers?

Response: "The disks of the games were difficult to get in and out of the slots."

Response 2: "The material it was made from was plastic and it scratched and wore away quickly."

Is finding a place to keep a console/CPU safe and well ventilated important? Please briefly explain your answer.

Response: "It's important that the console is well ventilated so it doesn't overheat and cause permanent damage that's beyond repair."

Response 2: "The console/CPU is expensive so it needs protecting as it is expensive to replace."

Users Need and wants:

- Unit must be able to **be ventilated well**.
- Shelves for disk cases must have **sufficient room** for the user to easier **reach it**.
- The design should be target to mainly **ages 17 to 25**.
- Majority of clients chose that the unit should be made from wood or plastics.
- Also, the unit must be **compact**.
- The preferred design style from clients was a cubic **modernist shape**.

Summary:

From this investigation, I have deduced that the majority of people who buy hard copy games are between the age of **17 and 25** – which is why I will targeting my product to this age group.

Also, I have discovered that in existing products, people didn't like how **difficult was to pull disks in and out of the slots which is why I am going to devise a method to make it easier**.

Furthermore, I will also need to resolve the problem of **protection of the CPU/console** that will be stored in it – as they are expensive and are costly to replace and fix. This will include me installing an **effective ventilation system**.

In conclusion, I have found out that I will need to target my audience to an older age range, find a way to improve the disk storage area and also improve the protection the gaming organiser gives.

Study Desk Tidy

Reason for investigation:

In this field of development, the design of the study desk tidy has to suit the needs and preferences in order to provide the most effective product for my chosen target market. This design is aimed at students and **university students** and **young workers** that deal with **a lot of data**. The desk tidy has to be suitable for the users working area which is why this investigation is aimed to find out how they would interact with the product and how it will look in their working area.

Is there a specific design you prefer (e.g. natural curved shapes, abstract shapes, cubism)

Response: "I prefer a modern style like Bauhaus it focuses more on right angled corners to create a cubic effect, which is what is trending."

Response 2: "As an art student, I prefer natural curved shapes as it can be morphed into any design and I believe that it will be able to suit modern design because of the contrast."

Do you agree with the following statement – "students prefer a shade lamp when working to general lighting"

Response: "7/10 chose yes and 3/10 chose no"

Reason for Yes: "its a lot quicker to switch on and adjust." "The quality of the light given is better as its closer and annoying shadows cast by objects in the way are cancelled out." (6/10 chose a modernist design approach).

Reason for No: "Some shade lamps are a lot dimmer than all round lighting which doesn't help the user to concentrate."

Would you prefer a compact desk tidy or a stretched out long one?

Compact stretched out

Result: "7/10 chose compact and 3/10 chose stretched out."

Users Need and wants:

- A design style mainly focusing on **modern design** such as Bauhaus which **curved designs to create contrast**.
- The unit must be **compact to save space** and keep the desk tidy – as the name suggests.
- The lamp must be **equipped with a bright bulb** with minimal shadows.
- Also, the **switch for the lamp must be easily accessible** to the user.
- Requested materials were mainly **metal and wood**.
- The lamp shade must be **adjustable** so the user can redirect the light to a direction they wish.

Summary:

This investigation has given me a more detailed angle on what the user wants with the product, how they want to work in their environment and how it looks in their working area.

Furthermore, for this research I have found out that this product needs to be **compact** to take up little space in the users working area, the design of the products should follow a **modern design** as that is what the majority of my clients have chosen.

Additionally, this research has shown that the shaded lamp should be **adjustable** and bright in order to suit the user's needs.

To achieve these requirements, I will be conducting modelling to see what design styles, functions and materials will be suitable.

Model Making

Section overview: In this section, I will be showing how my initial brown paper designs have been evolved and improved after doing testing with models and using other inspirations such as my questionnaires and the feedback I received from them. This section will also explain why I have changed certain aspects based on design movement influences. From this is wish to gain information about what designs can work ergonomically with the user while also maintaining the standards my target market requires. Additionally, I will be highlighting the positives (in blue) and negatives (in red) of each design to show what can be improved and what should be considered when developing my idea further.

Gaming organiser

Model iteration one:



This model is one of my improved concepts from my survey research. The idea was generated from my development sketches in my sketchbook. Features of this idea are it is more compact than the original one and provides a rigid structure to protect the CPU / console it is holding.

The legs of the gaming organiser reaches up to its central point is where the CPU / console will be placed - leaving plenty of room for **multiple shapes and sizes of CPU's or consoles to fit inside**. This is good for the user because it means they can also store more than one console or CPU inside it.

Changes: I have changed this design from the original by removing the three-compartment concept and making it all into one **small unit which is sturdy, provides ventilation and compact** to tailor it to my target market. On the other hand, the unit has lost most of its functions as it **no longer has compartments from controllers and other gaming accessories such as headphones**.

Model iteration two:



From the first design, it was evident that there was a lack of variation for where gamers might want to put their other accessories. From this discovery, I have decided to divide the square central piece into smaller sections. The rectangular compartment on the left is where the CPU or console will be placed. The size has been reduced as modern consoles and CPU's are considerably smaller so a large space isn't **needed**. Two smaller compartments have been added on the right in order to provide a space for other accessories to be put such as **controllers or headphones**.

I have changed certain aspects of the design such as the two leg stands and replaced in with a **flat base which gives it better balance**, the negative of **removing this is that the disk storage compartments** have been removed with it meaning there **is limited space for disk casings** to be stored.

Model iteration three:



In my third model, I added vents inspired by the art deco design movement. Although it also serves a good functionally purpose of **keeping the console or CPU in the compartment cool**, it also has a good aesthetic purpose as it uses different geometric shapes combined. Furthermore, I have added an art deco designed shelf at the side of the organiser. This is to help users **store any other accessories that might not fit into the smaller compartments**. This provides more variety on how the user wants to store their items. On the other hand the shelving unit, cannot hold items securely as it does **not a guard to stop items from falling off it**.

Study Desk Tidy

Model one:



In this model, I used the Le Corbusier Béton Petite Lamp in my design and adapted it to my work. This design is inspired by modernism mixed with an art nouveau style. It has a file holder which fits the functional purpose of the compartments under the lamp contain an **eco-amp to amplify music** when the phone is placed inside. This is an extra advantage the user can have when revising as they can listen to music while studying. The second compartment to the right is a large cupboard where items like accessories like pencils, scissors, glue, and rulers can be placed. The use of the Le Corbusier lamp means **it is not adjustable**. This means that only the area under the lamp will be brightly lit. also the compartments under the lamp will be difficult to access was the user will have to reach over the solid lamp shade. Furthermore, the eco-amp is placed under the lamp also meaning that **phones will be difficult to get in and out** – making it hard to work with.

Model two:



When I developed the first idea, I changed the lamp from the Le Corbusier modernism style to an art Deco styled lamp. This will improve the functional aspects of the lamp because, **it doesn't have a shade above it** like the Le Corbusier lamp which means that it will **illuminate the working area more**. Underneath the lamp, there is a drawer which can also contain accessories like pencils and etcetera just like the fist model could.

The blue strip on the file holder also follows a art deco style as it uses bright colours. But from this design, it seems that space is being wasted as over **50% of its structure is the lamps**. This only leaves room for features such as the file holder and the drawer underneath with little space to store other items. The **file holder does not have a guard** at the front of it to stop books from falling out.

Model three:



This design makes the product taller and therefore more compact which is what the majority of my clients that filled in my questionnaire wanted. Furthermore, an extrude able side flap has been added to the art Deco inspired shade lamp. Also I decided to remove the file holder and replace it with a shelving unit in between the drawer and the lamp shade. **As a result, this added height to the design causing it to take up less room on the desk**. This will provide a more free arrangement style as it suits what my target market want.

Furthermore upon building this model, it was clear that the structure was not stable as it was **top heavy**. This causes the structure to **lean forwards at risks of falling over**.

The addition of **the foldable side compartment** at the side of the lamp gives more room for the users **to store small items** that may get lost.

Sports trophy display

Model one:



This model has the capability of storing trophies and medals as well as any other small award that the user may have that they wish to display. The trophy case is **inspired by the international style design movement** which is mostly related to buildings.

From this model, I discovered that **medals would be hard to display** in this format as there is no

hooks for them to be hung on – as this design only consists of shelves and podiums.

The triangular stands for the trophy case has a **modernist aesthetics** which is good as **it fits my target market** despite the **space it takes up**.

This design gives a very **rigid format of display** which can be limiting to the athlete who wishes to display their trophies in this trophy case.

The original idea which mixed a wooden shelf type design with a glass box design to display medals while the wooden shelf was to display trophies has been changed as **I removed the separate glass box** and put its features into the wooden frame alone as my **target market prefers an all wooden design**.

Model two:



This development of the first idea removes the wide stands from the model and replaces it with an art Deco inspired step design at the sides. The build up of regular squares at the bottom and top corners of the design gives it the art Deco look. Additionally, I also split the middle to **add an extra compartment** for award storage.

Furthermore, the middle compartment is split diagonally, this means that it will **be impossible to display trophies on the top right hand section** of it as they would just slide down into the corner.

Also the unit does **not have a suitable design and function to accommodate hanging medals** to display.

Furthermore I have chosen to add more shelves to this design and less podiums because from my research, **more people have awards such as certificates which fits better into a shelving unit**.

Model three:



In this model, I have removed the stand and replaced it with a wall mount at the back. It also has **hooks for medals** as well as a podium for any trophies. It has four sides that are see through sealed with glass in **order to allow the user to view medals and trophies from multiple directions**.

Also, at the front of the design, there is an extruded rounded lip at the **top with LED lighting angled down towards the trophies and medals** in order to provide lighting when the room is dark.

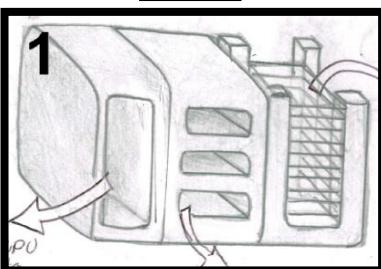
The design movement that inspired the white strips on the trophy case was De Stijl. Although it doesn't follow the black line and bright colour design that De Stijl does, I have incorporated the right angle lines on the edge of the design.

Section Overview:

On this page, I will showcase the various methods I used in the process of my designing - showing improvements and iteration. The iterations will also be explained for each concept and also the problems will be explained, as well as how they were solved. Each change was based on different aspects such as client needs and research.

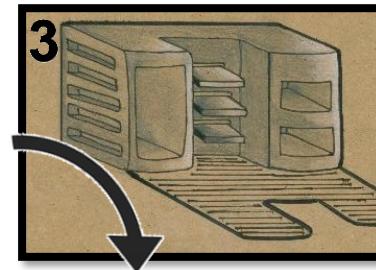
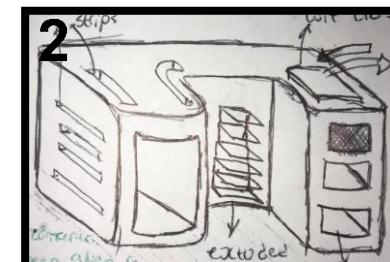
Iterative Designs

Gaming



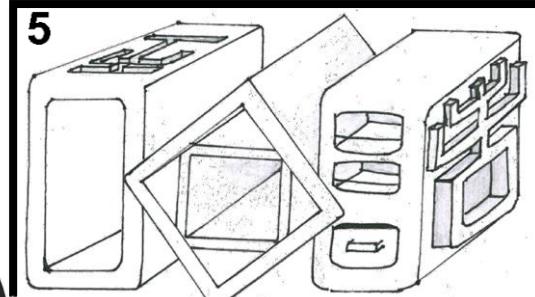
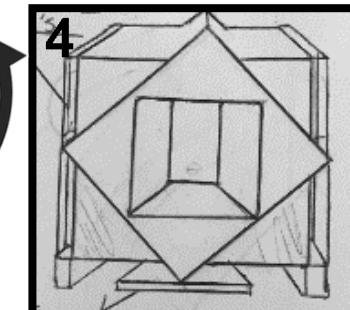
In order to come up with my first initial design, I made a mind map based of aspects of my life and selected areas from that and used it as concept. Using theses concepts I found problems in them and sketched a solution to solve it.

In order to change my initial design idea at this stage, I performed two minute sketches based on my initial design in order to make changes such as the shape and the position of parts of the product.



To show case my idea, I produced brown paper drawings to make aesthetic features stand out and to see what the idea can potentially look like using my chosen material – wood based on research from my questionnaires.

After doing some designer research, I found that the Memphis design movement could add both aesthetical features and functional features to the design. This made it more compact and rigid – while having the Memphis aesthetics..



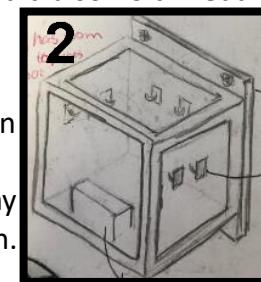
Upon realising that making the product being too compact meant that it does complete all of its functions, I integrated the Memphis design into my original design in order to make a stylish but yet multifunctional at the same time.

Sports Storage



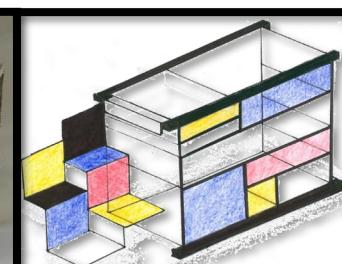
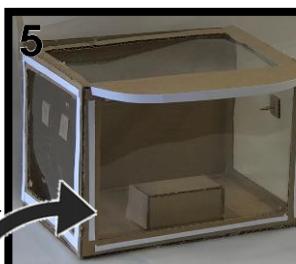
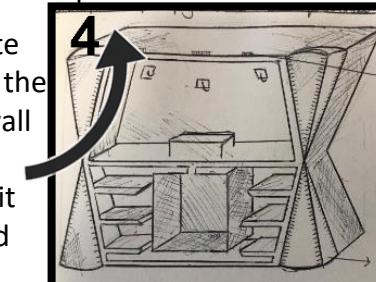
For this context, my initial design had multiple sub sections. The main to was trophy storage and sports equipment storage. I then based my initial design to accommodate both.

Upon realising that have an equipment storage as well as trophies would not be aesthetically pleasing, I decided to make it a wall mounted trophy case that could also hold medals.



While developing my idea, I did two minute sketches making quick improvements and the result of this was the culmination of the wall mounted trophy case and the floor based trophy and equipment storage space. But it would only be used for trophies and award displays.

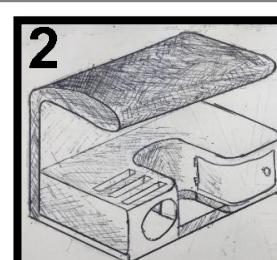
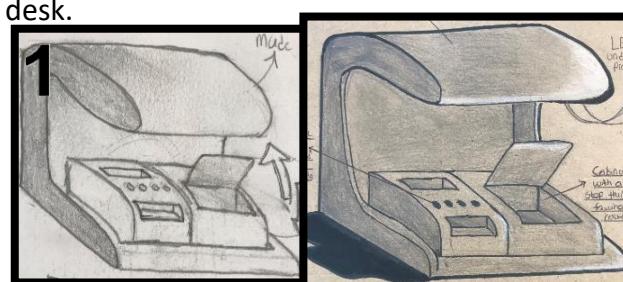
After the brown paper drawings, I proceeded to make major improvements to my designs based on design movement research – implementing three main geometric shapes, trapeziums, triangles and rectangles in order to fit the international style design movement. This shapes are most prominent in the pillars at the sides.



While model making, I progressed to placing white strips on the frame of the trophy case and recognised its similarities to De Stijl. I then sketched a De Stijl style trophy case with the iconic black frames and coloured panels.

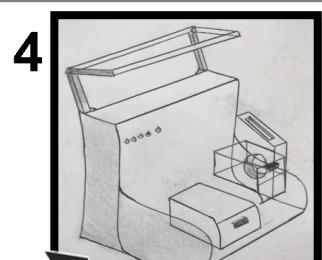
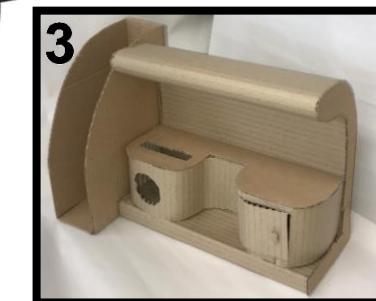
Study Desk Tidy

As a result of the Le Corbusier's "Béton Petite Lamp" which was originally an out door lamp, I have down sized the lamp in these designs and used it as an indoor desk tidy lamp incorporated with a desk tidy. It's aim was to provide study equipment space and illuminate the work desk.



To create more storage room. I decided to indent the middle of the desk tidy section. This created space for small lose items to be arranged such as rubbers, sharpeners and scissors. I kept the Le Corbusier lamp shape to maintain the modernism / international style the design held.

As the main function of the design was to provide a storage room of people in education, I decided that a file holder was needed. At the left of this photo you can see the file holder joint to the side of the lamp to give a tool for the user to keep lose pieces of paper as well as books.



Here I have turned the Le Corbusier lamp and modernised it, removing the curves and making it see through to fit the rest of translucent body of the design.

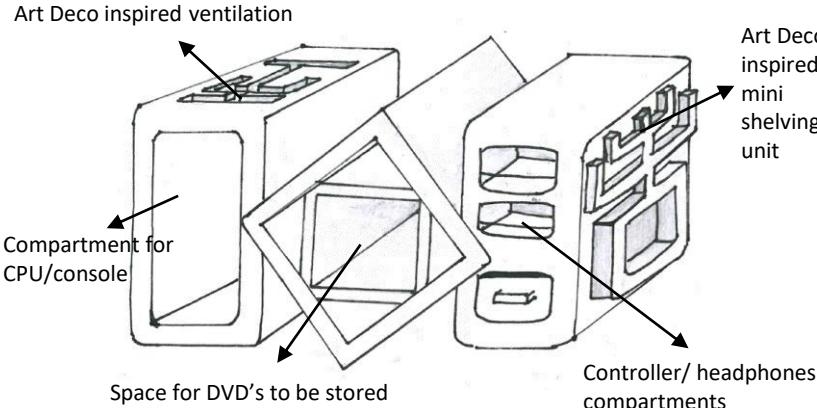
In conclusion, throughout my designing process, I have come to one conclusion for each context based on design movement influences, clients needs and feedback, quick sketch developments and also model making and testing to find problems.

Initial 3 Concepts Final Design

Section Overview:

On this page, my initial final designs will be presented and explained based on what inspired my final designs and the problems that the design is solving as well as its functions. This piece of work will also conclude the design developments for all three design concepts. Additionally, I will be discussing how well each of the designs for each context will solve the original issue presented. I will also be discussing the possible progressions for each design based on their positives (in blue) and negatives (in red).

Gaming organiser



Description:

In this initial final design proposal, I was inspired by the art Deco design movement. It is evident as on the side of the gaming organiser, there is an extruded shelving unit designed with geometric shapes linked together in order to make an art Deco styled design. Item such as spare cables and a router can be stored on the shelf. **This implementation allows the design to become multi-functional as all equipment isn't just stored in one major compartment, but rather has specific areas tailored to accommodate certain items better than other areas.**

The middle section works with angles and also takes an art Deco approach the design as it uses geometric shapes placed at angles in order to create more compartment round the box in the middle. **From this implementation, a flexible storage system is created – allowing users to store their games in five different ways in the same area.**

On the other hand, this area in the design can cause problems as it is too deep meaning that disk cases might go too far in – preventing the user from bringing it out easily. This will require a backstop to fix this problem.

Furthermore, art Deco is also implemented in this design as the vents for the space for the console / CPU is made up of geometric shapes (rectangles) placed at right angles to each other.

Problem and solution:

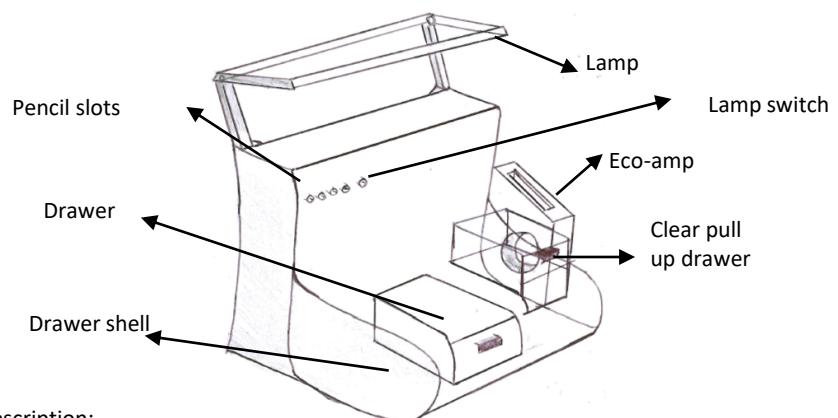
In this design, the problem of a fixed arrangement style for the DVD rack has been solved by the use of two squares at angles to each other to provide storage spaces at angles and in the box in the middle section. The compartments to the right side are designed to store games controllers and headphones. This was achieved as I researched to the sizes of standard gaming controllers and headphone and tailored the compartments to its size. **If the user has two controllers and headphones where would not be enough space to accommodate all of them as there are only two compartments tailored to storing these items.**

Furthermore, the CPU/console compartment remains rectangular to fit the shape of the majority of CPU's and consoles, as well as the vents on the top to keep the product inside it cool to stop over heating. **This is not a very sound solution to the issue of ventilation. His is because vents on consoles and CPUs are normally on the sides meaning that little air would escape from the compartment through ventilation at the top.**

Progression:

In order to improve this design further, I will need to consult a client to make parts of the product more specific to what they need. This would include thing such as where the vents should be placed to maximise ventilation, how they wish to store their disk casing, the dimensions of the location they wish to store the product in so that space isn't taken up unnecessarily.

Study Desk Tidy



Description:

Art Nouveau inspired this design as it uses a lot of curved edges and organic shapes rather than block designs. **This is because of the data I collected from my questionnaires where clients suggested they wanted a modern design mixed with curves to contract each other.**

The lamp on the top of the design and the eco-amp at the side takes a more modernist approach as it uses straight edges with geometric shapes making up the component parts.

The drawer shell is intended to be made out of clear acrylic plastic and can be vacuum formed or vacuum formed into shape. **Because of the clear shell, the user will be able to see the wires from the lighting. This would create an unpleasant aesthetical look to the design.**

The drawer unit inside the drawer shell will be able to be seen from the outside so that the user doesn't have to open the drawers to see what's inside it.

Also, the lamp now has a joint which allows the user to direct the light in a preferred direction with a light switch next to the pencil slots. **As of this, the user will not now have to use the main light as they can use the light to see in whatever direction they want – rather than standing up to switch on the light.**

Problem and solution:

The function of this product as a whole is to provide storage space as well as lighting for a student that is working. It combines a bed side lamp and a storage unit in order to minimise the amount of space taken up on the student's desk when they are working. This fulfils my target markets needs because, from my questionnaire, I found that 7/10 of my samples wanted the design to be compact.

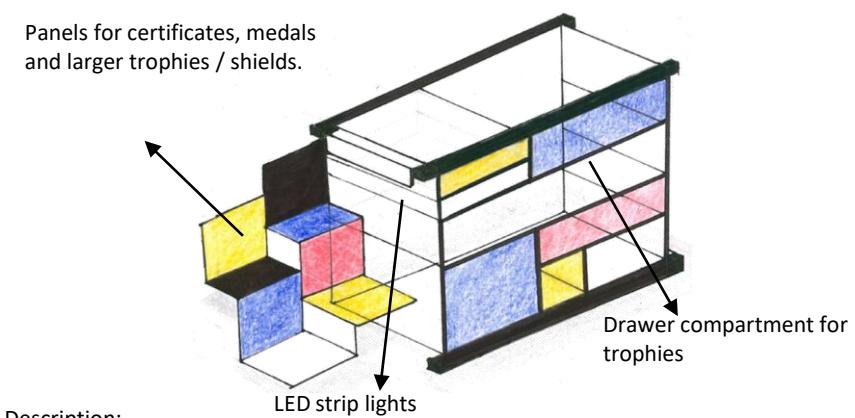
Furthermore, the pull up draw also means that the user doesn't have to move their work out of the way for the drawer to come out - but rather it can just come upwards. **As of this implementation, it also creates a problem for the user. This is because once the lid has been pulled up, it will be difficult to take out that is inside the drawer as there is nothing to pull it out. The user will then have to result to having to reach in to take items out – which can cause inconveniences.**

Additionally, the eco-amp at the side provides the user to be able to increase their music volume without actually having a speaker as certain students might want to play music while they work. **The addition of an eco-amp has more positive connotations to it as the user doesn't have to use a speaker which requires energy – therefore allowing them to save money.** There are also pen slots to store lose pens that might be hard to find if put in a drawer.

Progression:

To improve this idea, I will need to conduct test such as how effective the pull-up drawer would be to avoid complications with the user not being able to reach what is inside the compartment. Also other tests for the lamp joint will need to be tested to ensure that the lamp can point in different directions.

Sports trophy display



Description:

In this initial final design proposal, the design is a trophy case inspired by the design movement De Stijl.

De Stijl uses a lot of overhung edges with black frames and coloured panels using the colours black, blue, yellow, red and white.

At the sides, some panels are set up to allow certificates, trophies and medals to be displayed – while the main compartment is mainly made to display trophies. **This implementation allows the user to displace multiple kinds of items with trophies in the main compartments made from clear drawers, and the side with 'step-like' platforms allows users to display items like medals and certificates.**

The main compartment is a unique design because they are not shelves but instead drawers with vaguely coloured panels with the De Stijl colours so that the user can still see the trophies inside the trophy case.

Any trophy or award with a similar colour to the colour of the compartment it is placed in would be hard to see as the colours would blend together.

Problem and solution:

This design solves the problem trophy cases being too simple and not giving enough freedom for the user to chose how to arrange their awards. Also, this product gives a wider range of types of awards to be stored as it allows: medals, trophies and certificates to all be displayed – which eliminates the need for the sportsperson / academic having to buy multiple products to fulfil both needs. **As the design has multiple compartments with different sizes, this means that smaller awards can be placed in smaller compartments rather than taking up space in a larger one. This improves the efficiency of the product.**

The drawers for the trophy case will be able to be pulled up by small hidden handles coloured back so that it blends in with the black frames to give the product a nice aesthetical finish.

Furthermore, the trophy case comes with lighting to provide the user with visibility when the area the case is placed in is dark. **Because the design has translucent shelves, this means that shadows from other trophies will be cast unto other trophies around it when the lighting is used.**

Progression:

Improvement can still be made to this design by fixing problems such as the light casting shadows on other trophies. This can be fixed by adding lighting to each compartment shining from the front inwards so all shadows are cast backwards where there are no trophies. Also, another issue that is presented with this idea is that the drawers will need railings to allow it to slide in and out – this would take away from the translucent aesthetic look as the railings would stand out.

Conclusion: As a whole, I have followed multiple iterative design processes and researched different design movement. This has allowed me to come to the conclusion that the three designs above. I have decided to pick the concept of the 'gaming organiser.' This is because it has the strongest target market and has the most promising concepts as it uses a lot of interesting design concepts such as the use of geometric shapes at angles and creative perspectives. Additionally, I believe this idea is a major gap in the market as very few effective products of its kind have been produced.

Design Brief

Section Overview:

The aim of this project is to make a product that can be sold which is innovative and clever. Using the idea that 'one man's trash is another man's treasure', a product can be developed which covers multiple functions taken from previous products in order to increase the number of people that can use it. As of this, I will be briefing what my client expects of my product, the primary users of the product and the stakeholders involved in this design. Additionally, I will be detailing how I will move on to gain more ideas and fix possible issues of my chosen context of a gaming organiser.

Design brief

The design idea, (a gaming organiser) must be capable of having multiple functions and has to be inspired by a designer or a design movement. This design idea must also have obvious functions and designs that show it's a gaming organiser that is fit for its purpose.

I aim to make a gaming organiser which is meant to be placed on a desk. It has multiple functions which will allow my client to store multiple gaming equipment – keeping their desk tidy. It will not be expensive making affordable as my client is still a student who is likely budgeting. It must also have all the necessary storage compartments to for basic gaming equipment such as controllers and a console. Not only should the storage system provide organisation, it must also leave room on the table for my client to store other items, this means it must be compact. Additionally, the gaming organiser should also be compatible with other small items within my client's room if the space is not used for gaming equipment's only.

Primary uses:

Gamers who spend a lot of time gaming and have plenty of accessories such as controllers, headphone or gaming DVDs.

- Young men and women
- Organised professional gamers
- Computer / software engineer companies

Stakeholders:

- High street gaming retail stores e.g. GAME and CeX. This is because this is where items such as this will be sold. Therefore, retailers such as these need to be considered as it is where my target market will see the product.
- Office furniture providers as this unit has the potential to hold both console and CPU's, therefore, retailers such as these would take interest due to my designs multifunctionality.
- Gaming software / console providers such as PlayStation. Companies such as PlayStation could take interest in a product of this kind as they can sell it with their product as a bundle.
- Quality standard companies such as BSI. This is because companies such as BSI would be interested in my product as it will have to pass the safety and quality standards in order to be fit for sales in the UK.
- Gamers: Internet entertainers and gamers would be interested in this product as they are the main target market besides my client.

Client Profile Brief:

Peter Oni:

When Peter Oni is gaming, he prefers to stay organised. He is currently studying in school but plays games in his free time and hopes to start a YouTube channel in order to become a professional gamer.

At the moment, he doesn't own a facility to organise his gaming accessories so he leaves it on his table.

Peter also cares about the environment, so he prefers this furniture to be made out of preferably recycled material or from sustainable forests where for each tree cut down, more are planted. Additionally, Peter requests that the product should be compact – so it takes up less space on his table.

Design brief commentary

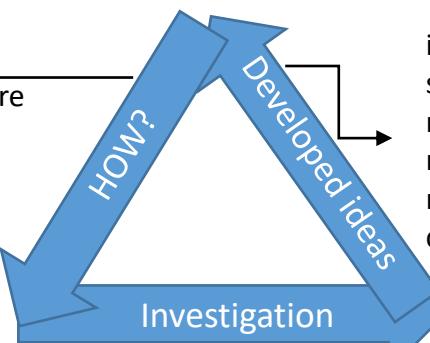
From my design brief, I have stated my design must be compact. This is to leave as much room for my client's desk after he fits all his wanted items into the unit. This will allow my client to have space to do his studies and also keep his gaming equipment tidy. As I progress, all the compartments of the unit must be fitting to the aim that the unit is compact – saving space and compatible for other small items that may be loose – which my client wishes to keep safe.

Furthermore, I believe there is an opportunity in the market for a design that protects the users CPU / console. Many designs that come close to a 'console case' do not have the right parts needed to make it effective such as ventilation. This issue can be solved with methods such as fretwork or holes placed in strategic positions to allow air to flow – keeping the console cool.

My design my fit, a Memphis or cubic design style, use low power production methods to help the environment, it must also be compact or have any additional parts to help aid my client in keeping his desk tidy.

Planning Processes:

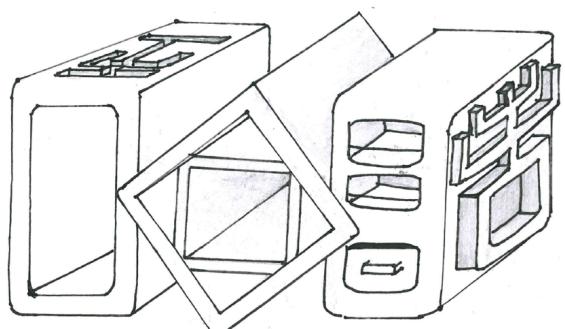
- Materials
- Size
- Manufacture
- Testing
- Mock modelling
- Prototype



To develop ideas, iterative sketches and mock modelling will need to be conducted.

- Existing product
- Questionnaire
- Current trend
- Design movement inspirations

Proposed idea:



Progress:

In order to move forward in this design proposal I will:

- Research into social, ethical and environmental trends
- Reverse engineer other existing products similar to mine
- Review client necessities
- Use primary and secondary research to develop the products functionality.

At this point, I must do all these steps in order to adapt my design more to the users' needs and necessities.

Client Profile

Section overview: In this section, I will be outlining and describing the concept I have chosen, describing the problem that is associated with this concept and detailing my client's needs. Furthermore, I will be taking into account the location my client will need the product in, the types of design style that they prefer, and other above the line aspects that should be incorporated into my design. In progression, I will then begin to conduct primary and secondary research to see what functions and forms I could integrate into my product – to suit my client's preferences.

Client Profile:

Client Name: Peter Oni
Concept: Gaming Organiser



Age: 17
Occupation: Student
Profession: Part-time gamer and entertainer

About Client:

The client that I have chosen for this concept is a current A – level student and a YouTube gamer and entertainer. While conducting my questionnaires to find out my target market for each concept, peter showed the most interest in the gaming organiser. After a short discussion and showcasing of possible ideas to my client, it was clear that he was looking for a product like this on the market. Peter hinted that he had been looking for a product like this one for a while, but there seemed to be a gap in the market.

Client Location



Client Table size:
1000mm by 700mm

My client showed me his situation where he had a table with his monitor, console, controllers, wires and DVD packaging on it but limited space for his other accessories such as his speakers (which he liked to use when gaming), his controllers and the DVD / Blu-ray disks. Because of his lack of space, he had to place the controllers, speakers, and DVDs elsewhere when he wanted to study or do anything besides gaming.

It became clear that this was an inconvenience to him as he would have to get off his chair and move around just to simply change the game he was playing because the disks were not easily accessible.

Problem:

As having to get up regularly just to change controllers when the battery died or having to change the game my client was playing, Peter needed a compact storage compartment – allowing him to store all his equipment on his desk in once place without taking up too much space. Furthermore, because of the disorganisation of my client's room, he said it became harder to find things as other smaller accessories such as charging cables and headphones would get lost, as well as important pieces of work he had done for his school work.

Client Needs and Wants:

Peter needed a utility storage system which allows him to game comfortably while maintaining the order of his school work and gaming equipment.

Aesthetics: My client preferred the design to have a cube-like look as he prefers simple geometric shapes. But also he prefers to have a bit of creativity on it such as a mix of materials. As he likes the childish look of the Memphis and art deco design, he would like a cubic design but with some creativity.

Environment: Also, because Peter supports the maintenance of the state of the environment, so he asks that this the product be made from recycled or recyclable material or from sustainable sources such as sustainable forests to ensure that we are replacing the damage with new trees.

Size: As my client's space is already limited. He prefers that the product covers more area vertically than it does horizontally. This is so that not as much space is taken up of his desk. As for the form of the product, he does not have a preference as he suggested the more complex the better.

Function: The function of this design is to store specific products related to gaming ranging between, controllers, DVD packaging, wires, speakers / headphones and consoles. Peter requests for tailored designs to store these products primarily before any other item.

Materials:

As mentioned before, my client respects the environment, so the material he wants to use have to be recyclable and easily reused or replaced. Therefore, he has resulted in suggesting his preference for acrylic plastics or wood. He does not mind metals but is adamant that if used they can only be used in small quantities / in small parts of the design due to the environmental destruction it causes when it's extracted and the high energy demand needed to process it.

Client Preferred Design Styles



The images above show the type of Memphis design that my client prefers.

It is obvious from these images why he requested for a cubic design with a splash of creativity as the designs shown are 'playful' but still, use geometric shapes similar to a cubic design style.



From these images above it is clear why he has chosen the preferred materials and styles he shows interest in. They are relatively simple but with a touch of complex form due to the Memphis style.

In conclusion, I will progress on keeping my client's needs in mind while conducting the testing, and researching designers and specific products – to find influence to better my design to suit my client and its target market.

Existing Products: Primary Research

Section overview: Moving forwards from my design brief and client profile, I will be conducting my own research on areas I feel that could be improved in my design. I intend to find out possible solutions to outstanding issues in parts of my design. This section will include detailing of features of existing products which I have found that could improve my design. It will also include the possible uses for it in my design based on my client's needs and wants. Furthermore, this page should also feature whether I feel a design is suitable for my design based on its aesthetics, form/size and its function.

One: (controller holder)

While investigating my target market and looking for inspiration for my design, I decided to investigate the type of displaying mechanism that gaming stores use to display controllers to see how I could integrate it into my design idea – to make it more functional and unique.



The photo shown is a photo taken in the store known as 'GAME' and it features a platform at the back to allow the controller to rest on as well as a curved lip at the top and the top and the bottom to clip the controller in – so it doesn't fall.

Features:

1. Adjustable clips to allow different sizes of controllers to fit into the clips.
2. A bench shaped structure with two holes on the horizontal plane to allow the arms of the controller to sit inside it – holding the controller up.
3. The clips with that hold the controller have a suction pad attached to it. This allows it to be stored in the most convenient location for the user.

Client uses:

This is a **possible feature that I could include in my design** to make the storage of controllers effective. This is because the controllers will be standing rather than lying flat like in the client's photo below.



Feature 3 (the stand) is made from flexible rubber. This also allows it to move around and face any direction.

Furthermore, my client suffers from the controllers often dropping off the table or being pushed.

Implementing a feature such as this in my product would stop this from happening as it is clamped down.

As the clamp is adjustable, this allows it to be multifunctional which is what my client needs. In a case where the clamp isn't being used to hold a controller, it could be used to hold other items such as a game disk or headphones. This feature provides my client with some freedom in how they arrange their items.

Despite its many possibilities, **I think these designs would not work for my design**. This is because my client wants a compact design which with compartments and this feature (feature 1 and 3) would not fit into the design, therefore, taking it over his preferred limit of 500mm by 500mm. Furthermore, this design will need expensive materials and functions which would then increase the cost of the product. As my client is only a part time entertainer he cannot go over his budget of £100 for this product.

Additionally, the materials it uses (rubber) has a high energy demand and consumes a lot of water and chemicals in its production process. This means it is not environmentally friendly, making it unsuitable for my client.

Two: (CD arranger)

From interviewing my client Peter Oni, I also found out that he is currently an academic and might not use the gaming organiser for specifically only gaming equipment, but rather books or other equipment's.



I like the way the store has arranged the CD packaging as it makes good use of vertical and horizontal space. It also allows the user to see what they are looking at without having to move other objects out of the way to see it.

Features:

1. The arrangement goes diagonally to make up less space on the horizontal plane and make better use of the vertical plane.
2. Also, multiple items can be stored on one layer before having to use the space above. This allows for better arrangement for categories of games or books that my client may be storing.

Client uses:

Creating a 'stairs-like' following a **diagonal plane** rather than horizontal would be **useful for my client**. As my client desk space is one of his main issues, it would be an innovative design to implement into my design.

This would be an effective addition to my design as **my client will be able to see the games he is picking** up without having to sort through them.

The only thing flawed about this design is that it is very linear in terms of what it can accommodate. Making a shelving unit following this design means that it **removes the multi functionality aspect of this component** of the design.

Overall, I believe **this design would make my design stronger** because of its use of vertical space. Using this design would solve my client issue with having items spread out across his desk as items such as his DVD packaging will be sorted above the table.

Three: (Shelving Unit)

In my initial design, I have a Memphis style mini shelving unit attached to the side of my compartment that holds the drawers in the gaming organiser.



From this display unit, it has inspired me to incorporate a safer way to store smaller items using stands with clips at the bottom to balance an item such as a phone or cable so it doesn't fall off the shelving unit. This design will be good for my product because it is meant to be compact.

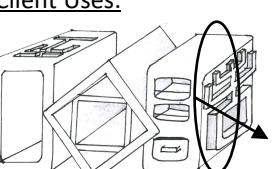
This means that the amount of space used can be minimised as well as because the shelf will not need to be extruded much from the side, but rather just the strip of clips to hold items up.

Features:



1. The phones are balanced in-between the double clips at the front, paired with an identical pair behind it to balance it.
2. The clips can be adjusted to move further away from each other to create a larger gap. This means that larger items can be put into the clips for safe storage.

Client Uses:



Regarding my initial proposed idea, this design would further my design regarding the shelving unit on the outer right-hand side.

This current design on the side makes the product more bulky than it should be – **taking up more room than intended**.

Installing a clip-like design from the existing product researched at the side rather than this **art deco** shelf would be more space effective and suit my client's wants. This is because my client prefers a Memphis and cubic design. Furthermore, implementing the clips would allow **easier storage for items such as wires and cables**. This is because they can be simply warped around the clips (hanging) when not in use.

Using this design would be beneficial to the size restrictions and also fulfil the multifunctional aspect that my client and I wish to have.

The clip parts of my design will **add multifunctionality** because it would be able to hold items such as a phone, wires and cable, small pens and pencils that my client leaves laying around on his desk and other thin items such as gaming manual sheets.

Although the positive aspects of this design, **this component part is not suitable for my design** as it is on the side. This is because my client wants the design to fit in a corner. If the clips are on the sides then it would be inaccessible to my client. Using a design like this would be most effective on the side and not inside – as it would become difficult to reach. Therefore, this part will not be suitable for my design.

Four: (Rotating book holder)



Lastly, another feature that my design has is that it's meant to be able to hold CD / DVD while also making it accessible for the user to get without inconvenience.

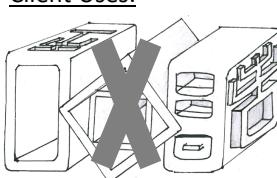
I believe that this design can be incorporated in my product in order to make it more practical as it can rotate.

Features:

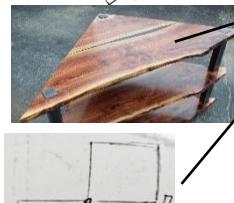
1. Firstly, the product has four sides with storage space, this allows for the user to store their DVD's or books on it providing sufficient space.
2. Secondly, the product has a ball point pivot – which allows it to rotate in a circular motion. This gives the user 360 degrees access to the product without having to remove any other object from the way before they can use it.
3. Furthermore, this product has a lip at each corner. This allows the user to have something to hold when wanting to rotate the book holder.

This can be a good addition to my product because it can allow for more abstract and free organisational structure.

Client Uses:



To make this pivot design practical in my work, I would **need to remove the angled square** from the middle originally designed to hold the DVD packaging and replace it with a triangular shelf piece – similar to the photo shown below, while placing the two rectangular pieces at 90 degrees with the left piece back inner corner touching the right piece back inner corner.



This **implementation of the pivot joint would be useful to my client** as it will become more **compact** – saving space on his desk, and also can still fit in a corner when it closes up.

I believe this design would be a good implementation in my design as it improves its space saving function as it can close and open (reduce space when closed).

Conclusion: In conclusion, multiple ideas could improve my design such as the rotating bookcase and vertical DVD shelf holder as it improves the functionality of my design and fulfils the space requirements from my client as well as giving the design a playful look as my client has suggested he prefers.

Existing Products: Secondary Research

Section overview: By conducting secondary research on products surrounding my concept of a games storage device, I wish to pick out important aspects of successful products. This will enable me to pick spot weak areas in my design and therefore improve them. I must analyse aspects such as the features of the existing products, the function, the cost and customer reviews of successful products in my market. This will then allow me to compare them together to pick out their positives and negatives – allowing me to see what design features are best for my idea.



Official Sony PS4 Game Storage Tower

Description: Sony Plat Station has made a product designed to store the Blu-ray disks casing that comes when a player buys a game. The organiser takes the form of a ‘tower’ in order to reduce the amount of space it takes upon the user’s desk. The game storage tower is also specifically designed to fit PS4 and X-box one Blu-ray packaging – to allow the user to have easier access to the games and neater storage.
Major Function:
The area circled red shows sections in which the Blu-ray packaging is meant to be slotted into. Its mechanism uses a platform to support the Blu-ray packaging to stop it from falling down, but also enough room for the packaging to easily slide in and out.

The description of the product also states that it can be disassembled in order to make it convenient for travel. This can be seen by the section circled blue as these are joints that allow the product to be taken apart.

Features of product:

This product would be normally used by gamers. The reason I have looked into this product is because it has similar features to my gaming organiser. The game storage tower is significantly different from my design because it focuses more on just the storage of disk packaging. Finding a way to store games while keeping it compact in my design poses a problem as it takes up too much room as it is.

As a result, I am looking into this product as its plan is no larger than 200mm by 150mm, but yet still holds up to 10 disk cases.

Being made out of matte black plastic, this makes the product durable enough to take falls if knocked over, but it also has an anti-slip pad at the bottom of it to prevent this.

By using a rabbet joint and mortise and Tenon joints make the product easy for the user to assembled and disassembled. As a result, the product can be conveniently transported – increasing its mobility.

Furthermore, the slots which hold the game have are 20mm in height as disk cases are 17mm in height. This gives the casing room to move in and out without too much resistance.

Despite its effective methods of holding large numbers of cases, its only negative is there isn’t plenty of room for the under to pull the cases out when the tower is full. It would be difficult for my client to fit his finger in the minimal gap given – meaning the case can’t be pulled out.

Cost: The product costs between £14.99 which is positive for the user. This is because it is affordable and fulfils its functional purpose, making it cost-efficient as well.

Furthermore, reducing the price of the product is practical because the user would have already spent £300 plus buying the console and the games – so overpricing it would deter a buyer, hence the lower price.

Reviews: “This storage tower makes good use for PS4 games, but upon fitting it together ... the top parts didn’t connect well with the side pieces leaving gaps around the top joints of the tower.”

All references from: (https://www.ebay.co.uk/itm/254186882052?ul_noapp=true)



Multifunctional Game Disc Storage Tower

Description: This product is very similar to the other one but accommodates two slots at the top of the storage tower to allow the user to store and change their PS4 controller circled in red – accompanied with an adjustable section circled in blue, which also allows a console to be stored as well.
Major functions:
This gaming organiser charges two PS4 controllers simultaneously, stores Blu-ray packaging, detachable charging and an extendable clip to hold both PS4 or X-box consoles. This product can also hold 12 Blu-ray packaging and can also be dismantled completely – which makes it mobile.

Features of product:

This product is specifically designed for only gaming equipment to be stored in it. It is evident because it has special charging ports at the top of the game case tower to allow the controllers to charge when slotted into this area. This means that the entire unit is connected to the main power supply. This is an innovative idea as the user will no longer need lose cables hanging around as they can just connect their controllers to the unit – which is connected to the power supply, allowing it to charge.

Furthermore, the unit has an extendable plastic piece at the bottom circled in blue which allows a console to be clamped inside. This is a good accessory to the product because it means that there is no need to ventilation walls because the console isn’t surrounded by anything that would insulate the heat being released from it.

There is a fault in this product as well – being that it has no grip at the bottom of it. This means that if the table is being moved or and the unit is knocked over, it will fall over easily especially because of the added weight on the top from the controllers.

Cost: The cost of this product is \$10.90 or £8.33 (range from £10 - £25 depending on quality). This is because the product and its additional components are sold together as a bulk. The addition of two charging slots for two PS4 controllers, as well as a slot for a console to enter and a greater number of Blu-ray disk packaging should make it more expensive if sold separately but as a bulk, it is subsequently cheaper.

This price range acceptable for the components this product possesses such as charging ports and a compact structure – therefore saving space too.

Reviews: The reviews for this product state that it is ‘compact’ which saves the buyer space and other reviews also suggest that it is durable despite being made from plastic.

References from: https://www.amazon.com/KONKY-Controller-Multifunctional-Detachable-PlayStation/dp/B01FQJLEEU/ref=sr_1_13?keywords=ps4+storage+stand&qid=1557159499&s=gateway&sr=8-13
And <https://www.aliexpress.com/item/PS4-Slim-Pro-Console-Multifunctional-Game-Disc-Storage-Tower-Stand-with-Controller-Charging-Dock-Station-for/32918600735.html>



Mountable CPU Storage Bracket

Description: This product is a wall-mounted CPU storage bracket with ventilation holes. It is made from steel-plated sheets with screw holes for mounting with a white paint finish. Furthermore, this product can be attached under a desk to help reduce the space taken up by large CPUs. As it is made from thick steel plates, it is durable and safe from falls.

Major Function: The main function of this bracket is to create room on a desk for the user. By being attached to the wall or under a desk, it leaves work room at the top. The other function is also to protect the CPU from dropping off the desk. It has features such as ventilation to stop the CPU from overheating.

Features of product: The product is made from metal with a steel coating over it. As steel is being used this has some negative effects on the environment such as air emissions of carbon dioxide, it also wastes water as well as contaminates it in its processing stages. Additionally, it destroys landscapes when extracting iron ores which my client doesn’t approve of. This means that I will not be able to use this material in my design. Furthermore, this design has 12 mounting points (6 at the top and 6 at the bottom) which makes it very stable. This reduces the chances of it falling off the wall as it has many anchor points. Ventilation is put on 4 out of 5 sides of the design, this ensures that the CPU is kept safe from heat damage – making the product more effective.

Cost: As the product has been formed by using a die-casting which creates the shape seen above. This gives it a relatively clean finish as its shape is consistent and the thickness of the metal is the same all round. This method is commonly used for small products which have low melting points. From my research, this product has a cost range of between £35 and £45 most commonly.

References: <https://www.afcindustries.com/wall-mounted-cpu-enclosure-with-ventilation-holes-p651>

Similarities: From researching these two gaming organisers, it is clear that the major features they have in common are that they can both be dismantled and put back together to increase mobility of the product and also the ability for the product to hold Blu-ray disk packaging.

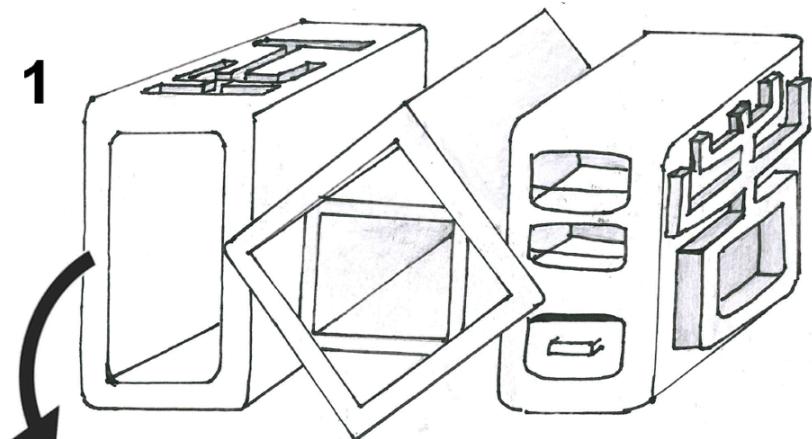
Differences: The second allows controllers to charge as well as storage for them while the first product does not, the second product can also hold more Blu-ray disks and the first product does not have a slot for consoles to enter while the second product does.

Also the mountable CPU storage bracket is quite different from the other products as it is designed to be completely off the top of a desk to create more desk room.

Summary: From this research I have picked out features in designs like it being easy to disassemble, holes for chargers to pass through will be needed and also the correct measurements for DVD slots to be to allow best range of movement of the cases.

Development Of Design Proposal

Section overview: In this section, I will be showing the journey of how my design idea has developed based on my primary research, secondary research and my clients' profile. I will be explaining my choices for the changes regarding its function and aesthetics. Each stage of development will be shown with the reason for the change along with the inspiration it was drawn from.



After constructing some models of my initial design proposal it was clear that the kite shape on the middle of the design was impractical and wasted a lot of space. This did not meet the requirements of my client (Peter Oni) as he needed to save space on his desk. Because of this, I considered implementing a pivot joint in the middle of the two side sections to see how I could reduce the account of space taken up with this design.



The photo labelled '2' is one of the products I investigated in my existing primary products research. In this product, there was a metal rod going up thought the middle attached to a static platform at the bottom used as the base. This allowed the bookcase to be rotated to allow access to areas were facing the wall without having to move it.

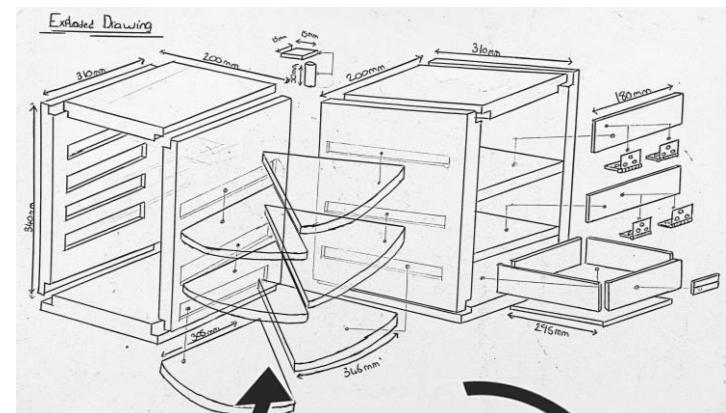
Because of this design, I decided it would fix the issue which my first design idea had as it took up too much space and implemented it in the middle of the two side compartments of the design. This allowed my product to open and close – expanding and shrinking to maximise my clients' desk space.



In the photo labelled '3' is my improved design of my gaming organiser with the pivot/dowel joint implemented in it.

In this design, I removed the kite shape from the middle because it was space-consuming and didn't offer effective storage space for what my client had requested (DVD holders) so after removing it, I replacing it with floating shelves on either side of the two compartments.

This design allowed the product to expand and open up when the user wants to take a game out of the shelf and close it when it isn't being used. This feature allows the amount of space it uses to decrease and also protect the games from elements such as dust.



As of the Art Deco-styled ventilation system, I decided to replace it with a simple rectangular slot design inspired by the PS4 game tower design. This design is lined up with the vents on the console to maximise the efficiency of the ventilation system.



- DVD/Blu-ray cases
 - Console
 - Other items laying around

The photos labelled '5' are photos of my clients location.
The product has to be able to fit on the table while also leaving space on the table for my client to do work on it as he is a student.

To progress onwards, I will make a specification to detail my clients specific wants and tailor my design more towards my target market. This will help the development of my product further because it allows me to have a checklist of requirements I need to meet to make a successful product.

Specification

Heading	Specification	Justification	Reference	Test / Measure
Function	<ul style="list-style-type: none"> The storage unit must be able to hold gaming equipment in a compact form to reduce the space used on the desk. As my client is also a student, the unit may be used for other items, so the unit must be multifunctional so they can store other studying items. 	<p>As a student and gaming entertainer, my client wants to have all his gaming equipment in one location while having space to study.</p> <p>My client wants all his equipment to be in one place so he doesn't have to move around every time he switches activities.</p>	<ul style="list-style-type: none"> Design brief page Target market page Client Profile page 	<ul style="list-style-type: none"> I will need to make models and place it on a scaled version of my client's table to test if it works ergonomically. I will need to consult my client of possible item other than gaming equipment he has on his desk that could fit into the organiser.
User	<ul style="list-style-type: none"> My client's desk is in the corner of his room, so the unit must be able to fit in a corner to reduce the space used and prevent loss of small equipment. Also, my client is worried about his console overheating, as a result, the design must have a way to keep his console ventilated. 	<p>If the product isn't placed in a corner, it will not be ergonomically friendly, as it will take up a lot of space in the middle the desk.</p> <p>Consoles are expensive hardware that is susceptible to heat damage. If measures aren't put in place to stop this it can cause a lot of money to fix.</p>	<ul style="list-style-type: none"> Questionnaire page Design brief page Client profile 	<ul style="list-style-type: none"> Further consultation of my client will be needed to see where the best position on his desk will be. I will conduct a test to see how much air can pass through the vents by using a hairdryer to simulate the movement of air out of the console.
Sustainability and Environment	<ul style="list-style-type: none"> As my client cares for the environment, the product must be manufactured from recyclable materials or from a sustainable source (such as sustainable forests) like recycled woods, plastics or small amounts of metal. The product must also use low cost manufacture methods. This is to reduce the damage of energy mining on the environment. 	<p>Sustainable forest must be used to satisfy my clients care for the environment.</p> <p>Rather than using high energy demanding production methods for all parts of the product, much of my product will be hand crafted reduce the energy used.</p>	<ul style="list-style-type: none"> Client profile page 	<ul style="list-style-type: none"> I will have to account for the type of materials and their source during the manufacturing process. This will require a detailed report of the machinery used and the time it was used for during the production process.
Cost	<ul style="list-style-type: none"> My client is a part time YouTube entertainer and has a budget of £100 meaning the price must be below this – accounting for production method and materials. A reasonable price would be £65. 	<p>My client is only a part time entertainer, he doesn't make large amounts of money from it so it's necessary to reduce the price.</p>	<ul style="list-style-type: none"> Primary research page Secondary research page Commercial processes page 	<ul style="list-style-type: none"> Prices will fluctuate depending on the demand of the material being used. This means I will have to monitor prices of the materials and set my price accordingly.
Ergonomics / size	<ul style="list-style-type: none"> This product is intended to be on my client's table with the measurements of 1000mm in length and the width 700mm. This means the measurements cannot exceed 500mm X 500mm. The DVD shelves must be large enough to fit the standard DVD packaging size which is 180mm X 120mm and 20mm tall. 	<p>There are only two locations suitable for the product to go on (either corner of the table) against the wall. Elsewhere, it will be susceptible to falls or take up too much space.</p> <p>My client wishes to have a place to put his games near his console to easy access.</p>	<ul style="list-style-type: none"> Questionnaire Client profile page 	<ul style="list-style-type: none"> By performing a location test, I will determine whether the product is space consuming and reduce the sizes if necessary. I will take measurements of PS4, XBOX and PC game disk packaging and work out an average size that can fit all the packaging sizes.
Aesthetics	<ul style="list-style-type: none"> The aesthetics of this design will follow the design movements of Memphis and cubism. Components will have bright colour themes to match the inspiration. My client's table is white, so a colour to contrast the table will be needed – possibly black. 	<p>This is because of my client specific interest in the design movements and an attempt to keep the design modern.</p> <p>When opposite colours are put together they contrast and often create a modern look.</p>	<ul style="list-style-type: none"> Designer case study page Sketchbook: design movements section 1 Client profile page 	<ul style="list-style-type: none"> Comparisons of design movement designs implemented in other existing products will be conducted to ensure that I have not ignored certain rules of a design movement in my design.
Material and manufacture quality	<ul style="list-style-type: none"> At least two different types of materials to improve the aesthetics by creating contrast. My joining methods must be sturdy. This is to ensure that the unit can hold the weight of the gaming equipment. 	<p>My client likes two design movements which use contrasting materials and wishes for it to be merged.</p> <p>Quality must be assured to make sure the structure doesn't collapse when pressure is applied.</p>	<ul style="list-style-type: none"> www.bsigroup.com 	<ul style="list-style-type: none"> Research into modern materials will be conducted to see common uses of materials that go together. To ensure quality, I will make sure that all parts are standardised, also I will also check that the products joining methods are suitable.
Safety	<ul style="list-style-type: none"> Removing sharp edges will be necessary for this design as it can cause injury to my client. There will be no lose pieces in this product because it can cause a choking hazard for any user with younger children around. 	<p>By rounding of sharp edges, hazard such as cuts and grazes can be avoided when my client is in a rush to get something.</p> <p>Any user who has children around wouldn't want lose parts. This prevents children from tripping or choking hazards.</p>	<ul style="list-style-type: none"> Questionnaire page 	<ul style="list-style-type: none"> Safety checks include: making sure all component parts are assembled properly, there are no unnecessarily sharp edges and that chemicals used to make the product aren't harmful/place a warning.

Working Detail

Console Compartment

The purpose of this compartment is to store a CPU or console (multiple), while also keeping it well ventilated.

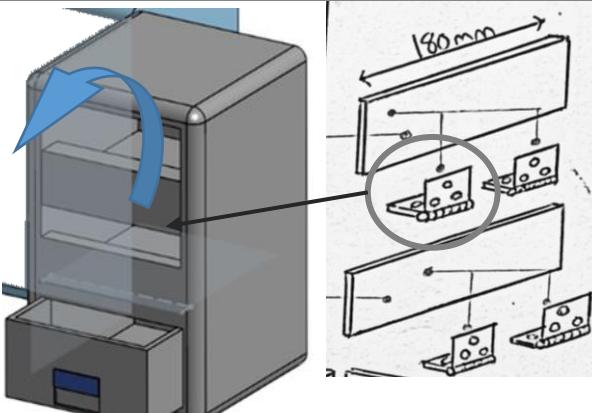
The compartment is **340mm in height** which is gives room for a PlayStation to enter without hitting the edges.

Furthermore, the compartment has four slots at the side to allow for ventilation. **Each slot is 300mm long and 20mm in height**.

Additionally, the 5 walls of the console shell will have a **rabbet joint** and a **mortis and tenon joint** to create a strong hold between the pieces when joined together – while also allowing for it to be **disassembled** to increase mobility of the product.

Accessory storage

As gaming requires extra accessories, I have added two compartments for accessories such as chargers and headphones. These spaces will be protected by a panel (stops items from falling out) which can be opened with a **hinge joint** as shown above.



Furthermore, there is one more compartment (drawer) that is provided to store accessories like controllers. The back of the compartment will **have two small holes** where charging cables can be passed though to charge the controllers when placed inside the drawer. The drawer also keep the controllers from becoming dusty. With dimensions of **180mm in length** and **100mm in height**, it is suitable for the user to hold the panels and handles to open the storage space.

DVD rack

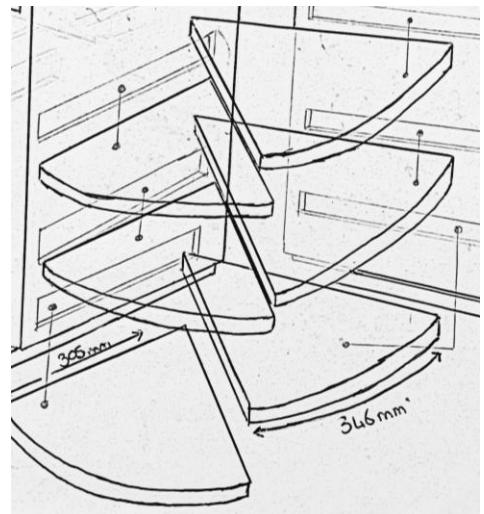
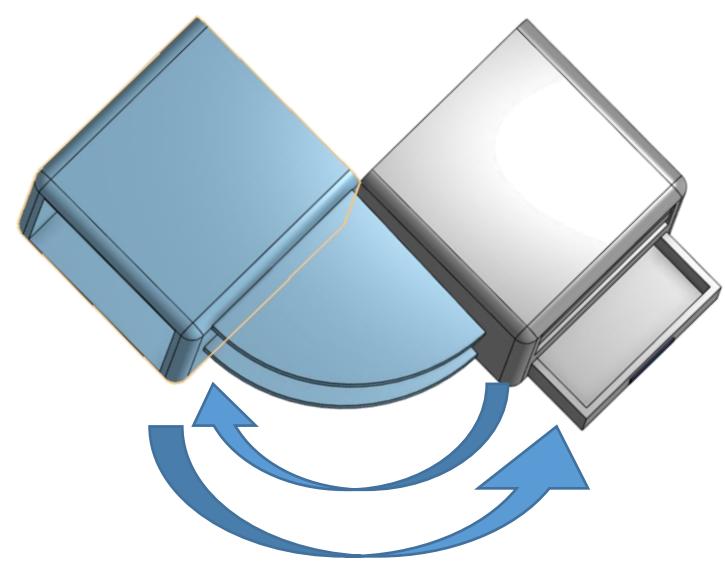
In order to hold gaming Blu-ray packaging or disks while keeping the unit compact, I have created a **pivot point** in the middle of the two main compartments. in-between, there are arced platforms attached to either end of the major

compartments so that when the pivot joint is opened, the disks will fan out allowing the user to see and pick what game they want easily.

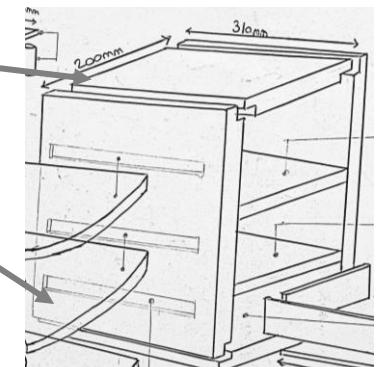
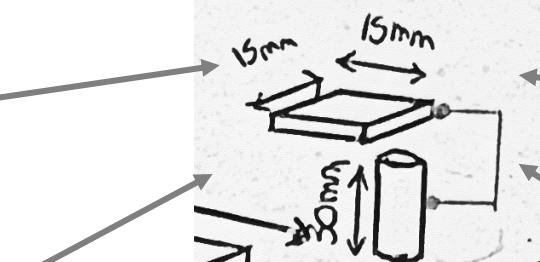
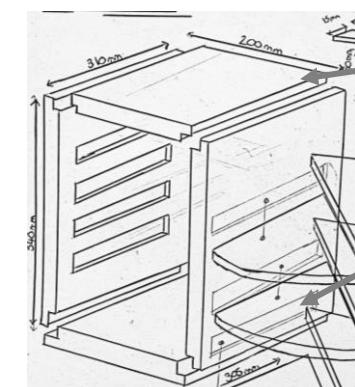
With dimensions of **305mm radius** and **346mm arc length**, this provides enough space of a standard Blu-ray packaging – as they measure **14mm in height**, **135mm in depth** and **190mm in length**.

The pivot point allows the **arcs to open up to 170° and close to around 70°**.

In order to aid the function, the compartment holding the console will have grips at the bottom to prevent it from moving, while the second compartment will have rollers to allow it to open and close.

Disassembly mechanism



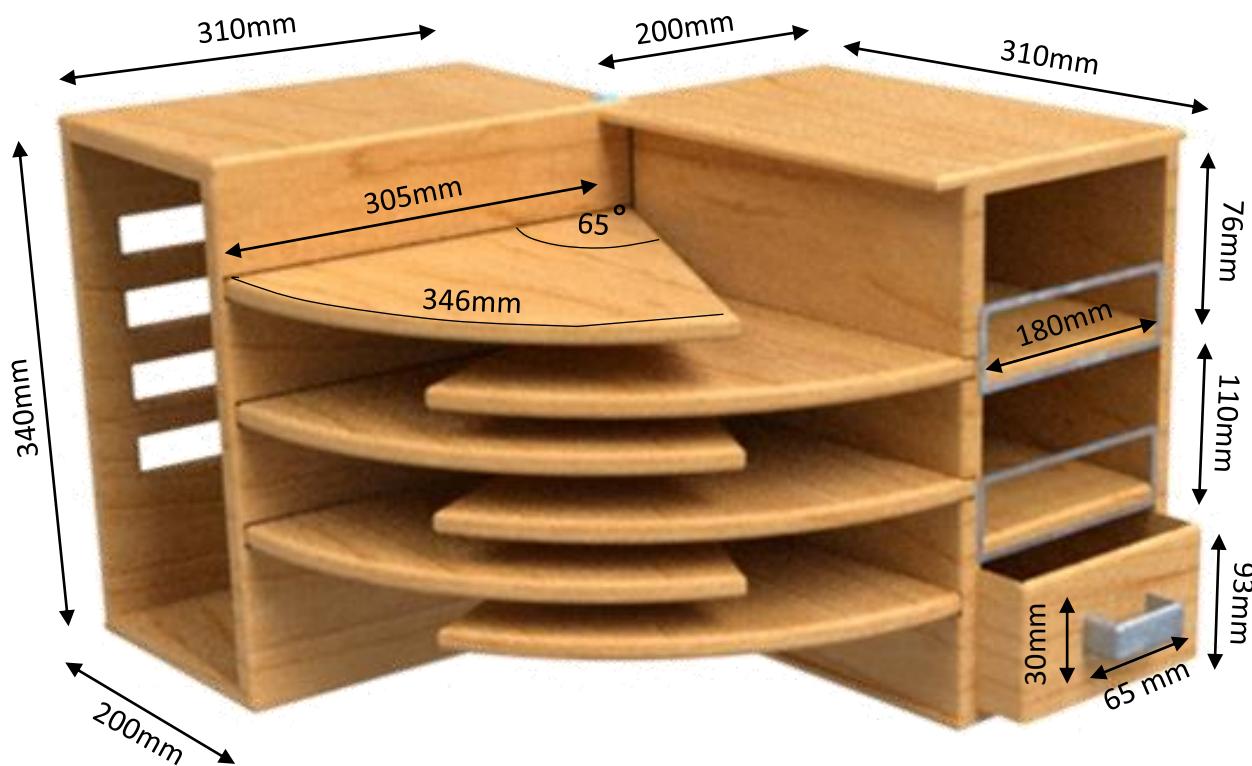
The pivot joint is created by joining the dowel to the square platform to stop it from falling through, this allows the system to be able to pivot. One is placed at the **top** and another at the **bottom**.

To make the product portable, the product must be able to be **disassembled**. In order to do this I have decided to use a Tenon and mortise joint accompanied with rabbet joints on each corner to the two main pieces of the design.

The dowel joint will also be removable to allow the two larger sections to be separated – this can also give the user flexibility in how that want the gaming organiser to be set up.

Although the DVD rack section cannot be removed from the walls they are attached too in order to achieve maximum stability when items are placed on them, the product will still be relatively compact when disassembled – therefore achieving easier portability.

CAD: Design Proposal



Materials:

In this design, I have chosen to use maple hardwood to create the main framework of the design while using buffed aluminium on moving parts – such as the handle, flaps and dowel joints. The buffed aluminium creates a high contrast from the pale wood which makes the aesthetics a more defined outline. Furthermore, making most of the product out of wood corresponds to my primary research – in which I used a questionnaire to find out what material is most suitable for the design.

Additionally, I have chosen to make the handles and flap frames out of aluminium because of its aesthetic benefits as stated above, also because over time wood starts to splinter which can be a health and safety issue – so therefore, I have used aluminium, and lastly because of its durability compared to that of wood.

As of the finishing method, I have chosen to give it an oil-based varnish finish. This is because it is highly durable, resistant to heat, wear and tear such as scratches and also deepens the colour of the wood – adding to the aesthetics of the maple hardwood.

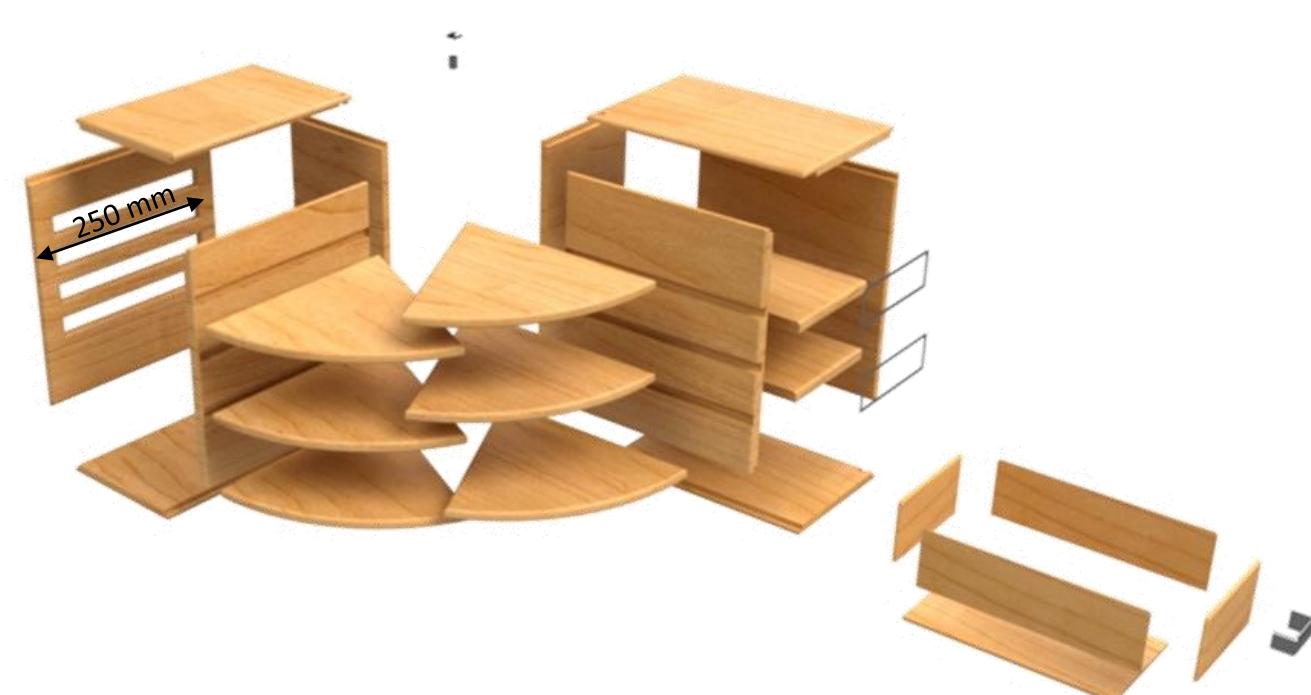
Testing:

As my product is multifunctional, it has a lot of components that can be difficult to fit into a compact utility unit. Therefore, I will need to test the materials and the way it is attached. The main tests will focus on the hanging shelves as they will need to be attached sturdily enough so that it can carry weight on it.

I will also need to ensure that the compartment holding the console / CPU has enough holes that are wide enough to allow the plug to fit through as well as the wires. This will require some research to find out the largest and smallest plugs to make a standard size – which will allow all plugs to fit through the holes.

Thirdly, I will need to find a way to allow the client to fix one end of the design to a surface so that the other end can rotate / pivot – allowing the unit to open and close up.

Additionally, I will need to perform some tests on what method is the best way to flat pack the system, as my client requires that the mobility of the product to be high. This will involve testing joints such as Mortis and tenon joints and rabbet joints.



Further Testing

Section overview:

On this page I will be testing the functionality of parts of my design. The purpose is to clarify and justify why I have chosen certain mechanisms in my design, material choices and to develop previous ideas that have been found not to be successful. Separately, I will identify why I have carried out the test for each mechanism and material, and record the findings that are most applicable to developing my product. These will include, structural features, joining / joints, and material strengths / durability's.



Reason For Test:

The floating shelving unit is designed to carry DVD and Blu-ray disk, which can be a significant weight so therefore, the structure has to be able to hold.

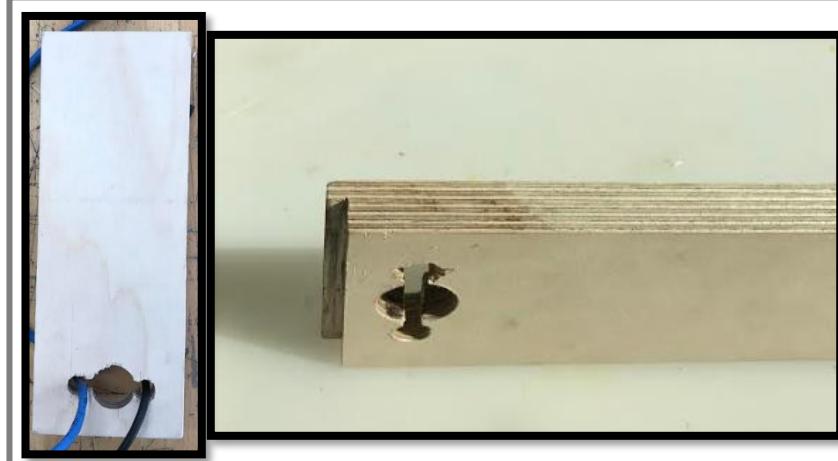
After testing the original idea of using a housing joint and wood glue to attach the shelves, it was clear that the joining would not hold.

As a result of this, I have placed iron rods as a support through the shelves. This is because they will be carrying weight on it. The purpose of the test is to if the housing joint or the housing joint with iron rods placed through it would create for a more sturdy joining method.

Result from Test

I have obtained some results from this testing which suggests that the housing joints cannot hold its own weight unless it has an additional adhesive with it.

The reason for this is because the thickness of the wood (15mm) would only be able to have a 7.5mm slot in it as the housing joint. This means that the thickness of the wood would have to be higher to just be a housing joint on its own without the iron rods to support it.



Reason For Test:

The reason for testing this section of my design was to find out the standard wire width. This will enable me to create a hole just large enough to allow a wire to fit in the holes and at least the smaller end of the plug to pass through. As a result of this test, I will be able to provide my client with a more ergonomic product- meaning it will be fully functional in all aspects as well as easy to use.

Furthermore, when making the rabbet joint, it became clear that it would be difficult to cut the joint with a hand saw, so therefore I will have to make use of the band saw - using a guide to ensure it is at a right angle or the CNC router to create a right angle slot to act as the joint.

Result from Test

From this test, I have found out that my design can house the standard thickness of a cable without it getting stuck. I came to this conclusion by putting different types of wires through the gap, such as a network cable and a standard console power cable.

Furthermore, from this investigation I have discovered that using a rabbet joint is very effective for my design because it creates more surface area for the wood glue to hold the pieces together; this creates for a more durable structure.

Reason For Test:

Pivot joint

Specific Designer Research: Ettore Sottsass

Section overview:

In this section, I will be writing about an industrial designer, and the influence their products or design styles will impact my work in order to further develop it – due to their work being successful in its market. The overall objective of this research is to investigate the reasons the designer has chosen to use a specific function or aesthetic and look into how it is depicted in the product. The investigation can draw out some problems that designers face while designing and consequently allow me to enhance my design to further meet my client's needs of functionality and aesthetic wise.



Designer:

Ettore Sottsass was an Italian designer and architect whose work focused on using geometric shapes at angles in order to create a modern look to his designs.

Mainly, his body of work focused on glass, jewellery, lighting, furniture, home objects, office machine design, as well as many buildings and interiors – along side his architectural work.

Company:

Ettore Sottsass was a member of the Memphis group which was founded in 1981. The group became known as it challenged the previous design movements and brought on a more playful style to furniture.

They were formed by a group of architects and designer who drew inspiration from other design movements such as art deco and pop art. As well as creating a playful theme to their designs, some designs followed a strict asymmetrical design with box like shapes used for products such as shelving units.

As they were highly acclaimed, the group produced and exhibited exotic furniture yearly between the years 1981 and 1988.

Product one: Cabinet



This cabinet designed by Ettore Sottsass used contrasting colours of black, white and red translucent plastic. This cabinet allows the person using it to display or store items such as books and household decorations at 90 degree angles; it also has a lot of open planes, giving room for the user to store their items with freedom.

Clearly, this design doesn't follow the regular storage cabinet seen in interiors of houses today. Usually, cabinets are rectangular with doors attached with slight changes in material choices and rectangular based curves incorporated.

This cabinet follows the rectangular structure of a cabinet, but also has a rounded pillar as a support with a minimal three colour variation.

Client Feedback:

After presentation of this design to my client, it's evident that they feel drawn towards the design idea of this cabinet being incorporated into my shelving / unit on the gaming organiser because of its unique look which sets it apart from its other counterparts of its design. Because it is so distinctive, my client would love to see it incorporated functionally and aesthetically into my design.

Product two: 'Cream'

The Cream end table was one of the products designed by Ettore Sottsass in 1984 under the Memphis group. It is made from wood and plastic laminate.



The compartment is designed to resemble a box on top of a double platform base made from two laminated plastic rectangles – made to pop by using vibrant red and yellow. The white cube contains a horizontal rectangular slot which has the function of a vacant compartment.

The main function of this design is to act as a side table placed beside other household furniture such as a bed, TV or computer desk or larger desks. With the addition of the horizontal compartment, it allows the user of the side table to store smaller items that can be easily lost.

Client Feedback:

From showing my client this side table, Peter Oni (client) was pleased opting that the concept of such a simple table can be added to my design. From this I strongly believe that this design can be implemented in my idea but rather as the drawer unit. This means that I will be able to use the horizontal slot in my design, acting as a handle rather, as a storage compartment.

Product three: Malabar

Upon looking at this product by Ettore Sottsass, it is clear that he has mixed two types of storage systems together but left half of it incomplete. In order to make up for the incompleteness, a diagonal line has been put

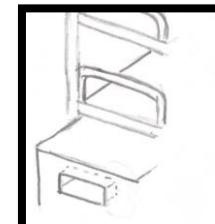
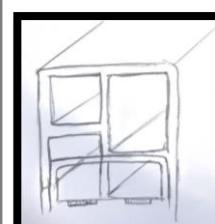


Upon looking at this product by Ettore Sottsass, it is clear that he has mixed two types of storage systems together but left half of it incomplete. In order to make up for the incompleteness, a diagonal line has been put through the middle and a separate 'half done' design has been merged to it to create a split effect to it.

Client Feedback:

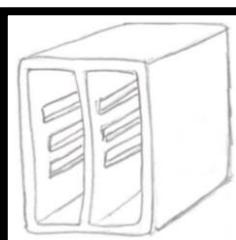
The idea of mixing two different designs together has pulled the interest of my client as it could be incorporated into the console/CPU storage compartment. Because of the unique design, my client has suggested that I make two compartments for the console compartment using a design like this – which would allow space for two consoles rather than one.

Possible Developments:



This development is inspired by the abstract cabinet made by Ettore Sottsass.

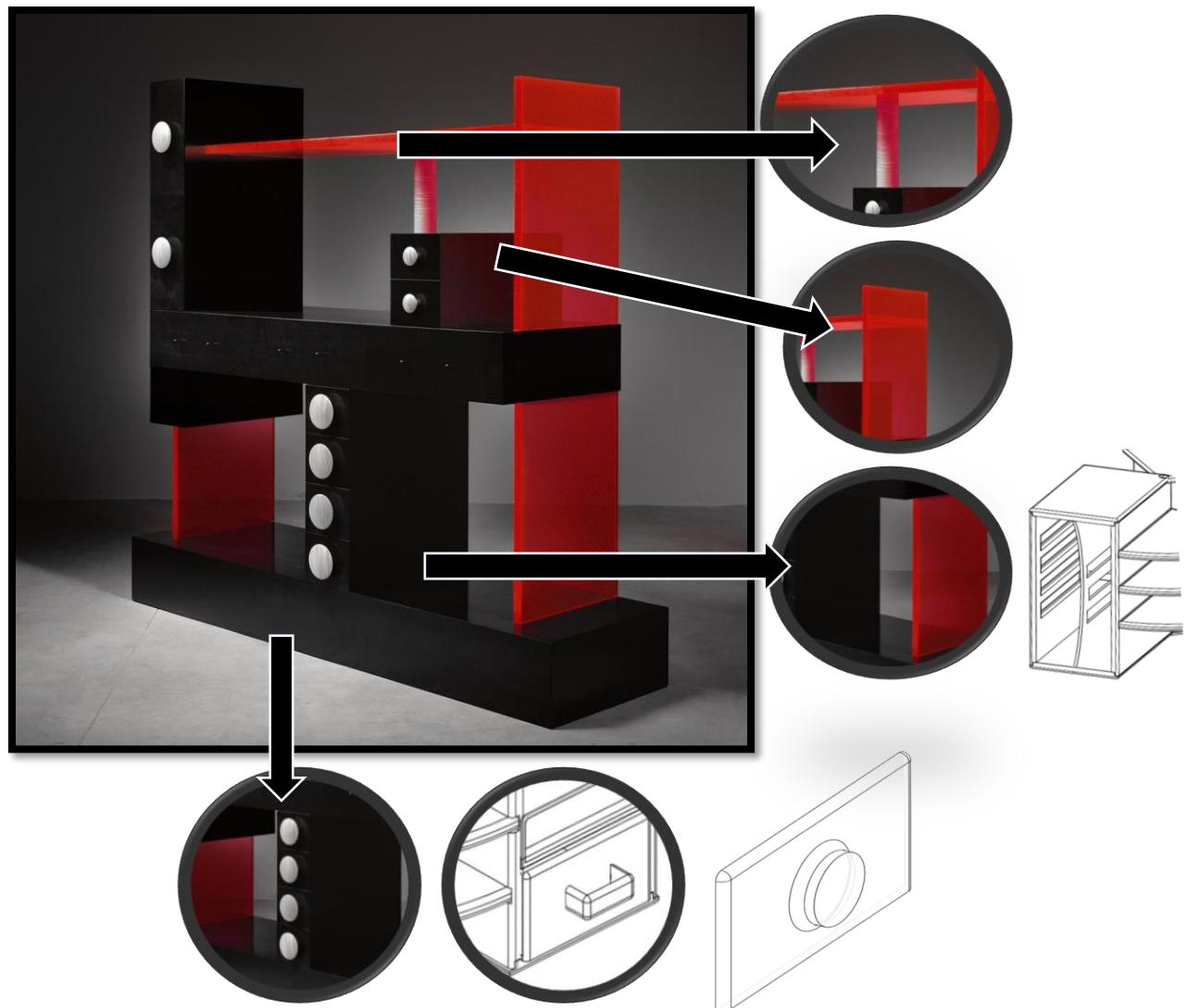
Drawing inspiration from the side table named 'cream' I have used the horizontal storage space as a handle in my drawer.



Taking inspiration from the Malabar design, I have split the console compartment in two.

Specific Product Analysis: Ettore Sottsass 'Cabinet'

Section overview: After researching a specific designer, Ettore Sottsass. I am now carrying out a specific product analysis to pick out specific traits in the design theme, and implement it in my design in creative ways. This research will not only focus on the aesthetical aspects on my design, but also the functionality of it. Aesthetically, I will focus on the material choice and the functional aspects will focus on the uses of the new designs and how they work ergonomically with the client. Additionally, below the line and above the line aspects of the product will also be analysed for the benefit of the development of my design.



Aesthetics:

From the design by Ettore Sottsass, the design does take the form of a shelving cabinet but rather, an abstract trophy-case like design. The cabinet was targeted to the working class and upwards, meaning they would appreciate the perfect use of geometric shapes placed cleverly to create a theme of display rather than storage.

Cost:

Because the work is of a large scale and high quality build, this creates a drawback in the cost because the larger the form of a product, the more material parts will cost – as more material is being used. Its cost compared to its other cabinet counterparts, will be much higher. This is due to the choice of material of thick acrylic plastic which costs a lot of money to produce – due to its manufacturing processes such as injection moulding, as it takes a lot of power to run. Overall the cost would not be too high as plastic is cheap and easy to come by – despite its manufacturing processes.

Target Audience:

Due to the cost of the materials and manufacturing processes, this product will have a niche market. This is because the cabinet is specially tailored to those interested in the Memphis design theme as well. As a result of its niche market and high production cost, its target market will be those of the working class and above. Furthermore, due to its unique design, Sottsass was able to explore the aptitude of his creativity in modern / childish designs to create a product that is of worth for a specific group of individuals.

Environment:

As acrylic plastic does not come from naturally in the form it is used as in products, it requires a dynamic production method based on the product being made. As of Sottsass' design, processes such as injection moulding will have been used which has a high energy demand. This high energy demand has a negative effect on the environment because more finite fuels will be needed to run the equipment such as coal or gas powered power stations – which is used to produce the electricity needed for the machinery. On the other hand, another below the line factor that affects the environment is a positive rather than a negative which is that the plastic used to make the cabinet could be made from recycled plastic or be recycled once its life cycle is over.

Size:

This design follows the traditional design style of a cabinet regarding its size. Cabinets range from five feet to eight feet in height and roughly three to four feet wide – based on research. This means that its mobility level will be low – as it doesn't have any mechanism embedded into it to allow the client to move it easier. For a product of its kind, this shouldn't be an issue because cabinets are normally large and only moved around when redecoration or moving. As of this observation, the cabinet being large also has benefits such as that it can contain a large amount of items that fit within its size capacity, while also giving the user freedom in the layout arrangement.

Function:

The cabinet does not do much more than its counterparts products other than aesthetic-wise. Its main function is to store or display items safely. This makes it a product which was designed more for a display purpose rather than its functional purpose. As the product was targeted to a niche market, it has two main functions: the shelving unit used to display items and the drawer units which are used to store items safely. The handles for the drawers function well as they are anthropometrically designed to fit the average human's hand – allowing the user to open it with ease.

Material:

This design is clearly does not take the form of its raw material form, but rather its manufactured form. The acrylic plastic using contrasting colours of translucent red and opaque black put together by housing joints creates a sturdy frame while giving the impression that it is easily breakable (as it has a plastic structure). What makes the material perfect for the structure, it is modern looking while taking on a childish look due to the contrasting bright colours used.

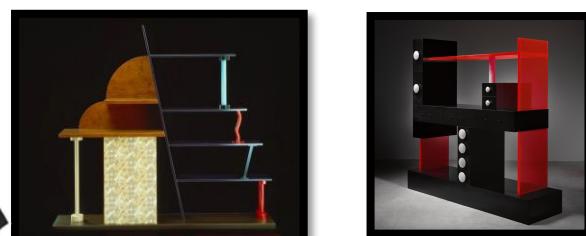
CAD - Final Design Development

Section overview: In this section, I will be presenting my final design idea which has been developed through my specific designer research, specific product analysis and my client needs and wants. I will cover the function of specific parts of the product, the inspiration for the form of the sections and also material choices. Furthermore, I will analyse joining methods and their efficiency as well as aesthetical choices.

Initial Final Design



Ettore Sottsass Design Inspiration



Final Design



Developments 1: Dowel Joint - After reviewing my client profile, it was clear that not all my clients needs were met. This is because one of my clients (Peter Oni) main attribute required from this product was to be compact in the corner of a room/table. My prior design, which had a pivot function - allowing it to expand and open up when accessing the stored DVD casings didn't serve a purpose to the client. It was clear that it took up space so I decided to remove the pivot from the middle and make it corner storage instead – which is what my client required for his location.

Development 2: Console compartment - While consulting my client, it was clear that there was an outstanding issue with the console compartment. This is as the console sits horizontally rather than vertically. Due to this, I have had to change the shape of the console compartment as if my clients' console was to stand, it would block the inbuilt ventilation on the console – therefore, making my ventilation system on my design impractical.

Development 3: Floating DVD shelf – When testing my floating shelves (which was previously in the middle of the two main pieces that used to open and close) it became clear that it would not hold with just housing joints, so I implemented iron rods through the middle of the shelf connecting it to the wall it was hanging off to give it more support. This improved the strength of the joint, but it was impractical because of where it was placed on the design. This is because in my previous design, every time my client would try to take out a DVD packaging, the second compartment attached perpendicularly would have to move to access discs that were not on the top shelf. As a result of this, I replaced the floating shelves with normal shelves – with the aesthetics inspired by Ettore Sottsass' cabinet design.

Development 4: Material and Colour Choices – Initially, my main materials I was using on my product was Maple hardwood and aluminium metal. In my new design, I have decided to make the outer and structural frame of the storage compartment out of 10mm Plywood and the inner pieces such as the shelves out of acrylic plastic. As for the colour choice of red and black, I was inspired by Ettore Sottsass 'Cabinet' which I analysed in my 'Specific product analysis' following the Memphis design movement style.

Client Feedback:

Once decided on my final design, I presented it to my client with justification for the developments, Peter seemed to be more drawn towards this design as he expressed it was more compact and suited to the function of storing gaming equipment. This was due to the addition of the headphone hanger, horizontal console compartment, specific compartments for the console storage, a tailored shelving unit to fit DVD packaging and a larger drawer unit to store smaller tools like chargers and connection cables that are not in use.

Planning:

- Firstly, I will test all my joining methods, to see if they are suitable and durable enough to hold the weight that the unit will be carrying. I will do this by performing weight tests with similar masses of a PS4 console, controller and headphones and speakers.
- I will then produce a detailed material list with the exact materials, the surface area along with its dimensions (length, width and thickness).
- Cost estimate of all the materials based on the surface area and the thickness.
- I will also manufacture an orthographic drawing to outline both the internal and external components of the design.

CAD: Final Design Material Justification

Section overview:

The purpose of this section is to justify why I have chosen certain materials to construct my product. In this section, I will cover the properties of all the materials I will be using to construct my design – covering some of their positives and negatives. From this properties, I will detail why I believe they will be a useful attribute to use on my products to make it as aesthetically pleasing to my client as possible while also maintaining structural wholeness along with effective functions and ergonomic usage.

Properties of Acrylic plastic:

- Additives can be added such as pigments in its molten state to give it colour, it also has high resistance to fading from sunlight and other weather damages.
- Furthermore, it is rigid – giving it a high impact strength.
- It has good stability and low mould shrinkage.
- If too much pressure is put on the material, it is subject to cracking from the weight.

Properties of Birch Faced Plywood:

- Because plywood is laminated, it has a high strength and stability ratio.
- It has a high resistance to impact due to the layers which absorb the impact force.
- When plywood is manufactured, additives can be added to make it resistant to water, chemicals, fire, and heat.
- Plywood can come in any shape, size and thickness – making it ideal as it can fit most requirements to make abstract products.



Construction and Structure:

The **black pieces on this design are all made from birch faced plywood** while all the **red pieces are made from red pigmented acrylic plastic** except the handle for the drawer which is painted red. The shelves will not be attached in a fixed position to allow for easier construction and deconstruction. The '**T**' shaped red component is used as a **headphone hanger and will be attached with a housing joint** unto the top of the controller compartment. The red controller compartment flaps will be attached with **butt hinges** to allow it to open and close – stopping the controllers from falling out.

Furthermore, **the long red panel on the right hand side of the design is to stop the head phones from falling off the unit** if for any reason it is knocked off the headphone hanger.

The **intricate design of the middle section splitter (splitting the shelves from the headphone hanger)** is made up of **small red acrylic slips slotted into small housing joints made out of wood** – to provide the shelves a second support towards the middle section.

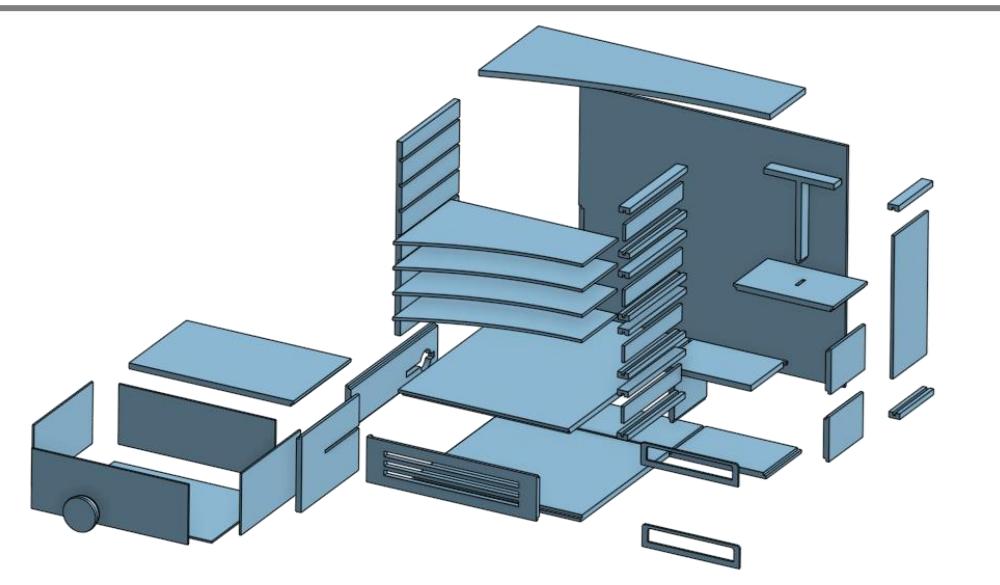
Materials:

After developing my initial design idea based of my designer research and investigation into a specific product designed by my designer, I have changed a lot about my design – as previously explained and as of the material, I have chosen to use: **birch faced plywood to create the main framework of the design** while using **red acrylic plastic on the internal parts which move** – such as the handle, flaps and shelves. The **red acrylic plastic creates a high contrast from the black painted plywood** which gives the whole design a pleasing aesthetic look.

The reason why I have picked **birch faced plywood** for the main outer frame of the design is because it has a **smooth face with light grains – making it ideal for painting**. Using a deep grain wood would require more layers of paint to give it a consistent look and finish. Also, **birch faced plywood has a uniform strength across its surface** and because it is laminated, it also has **resistances from warping, shrinking splitting** – making it a durable material suitable for the job. The **plywood being resistant to warping and shrinking is important because the console compartment will heat up** as the console will be putting out warm air.

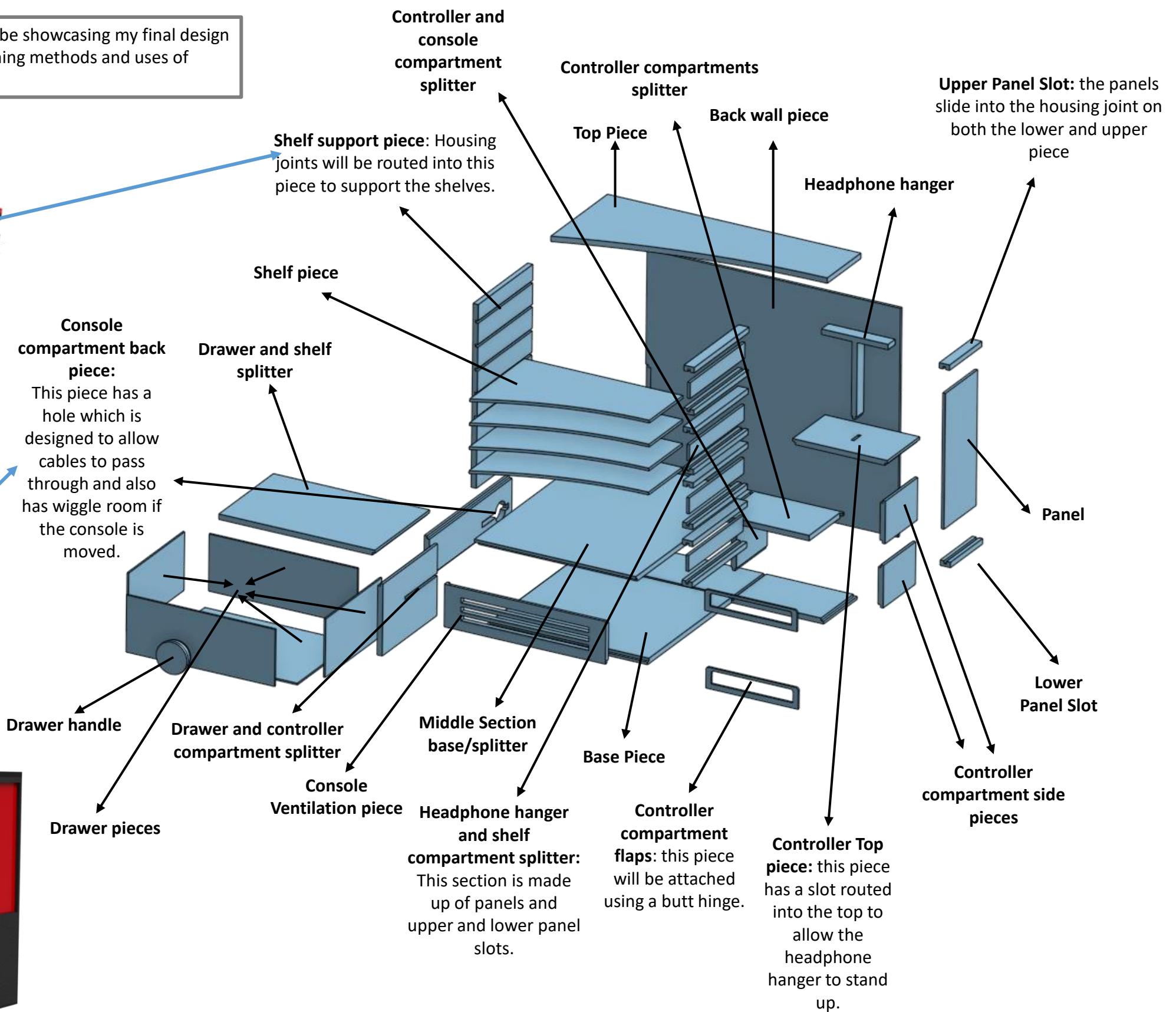
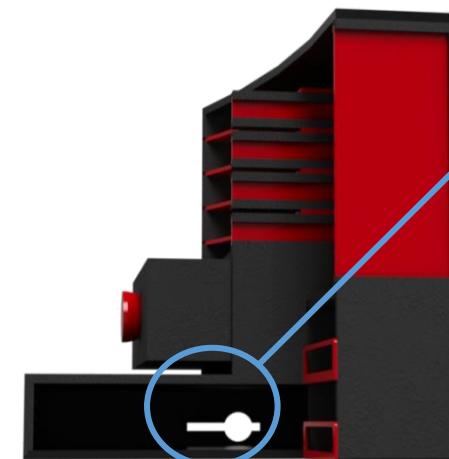
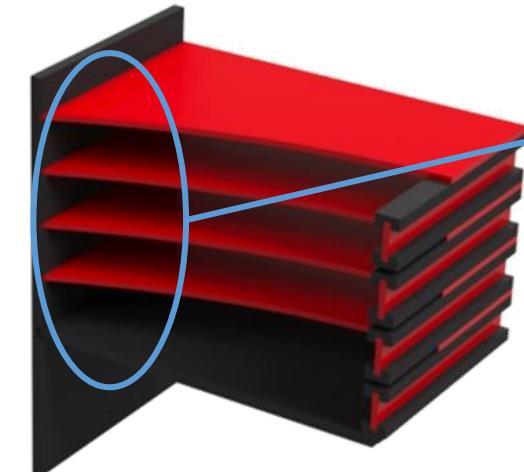
Additionally, the **reason why I have chosen to make the handles and flap frames out of red acrylic plastic** is because of **my designer research into Ettore Sottsass's cabinet** which was used to store items and follows the colour scheme Sottsass also used. Furthermore, it also takes a more ergonomic shape and function to benefit my client by making it a compact structure – allowing my client to utilise as much space as possible.

Acrylic plastic is already finished from its stock form, meaning that I will not be applying any other enhancements to it except sanding the edges with fine grain sand paper to prevent scratching the surface. As of the plywood, I am painting it black with oil-based paint. This is to make the surface have a gloss look to it rather than a matte black look – while also making it resistant to water damage, which also fits the characteristics of the acrylic plastic.

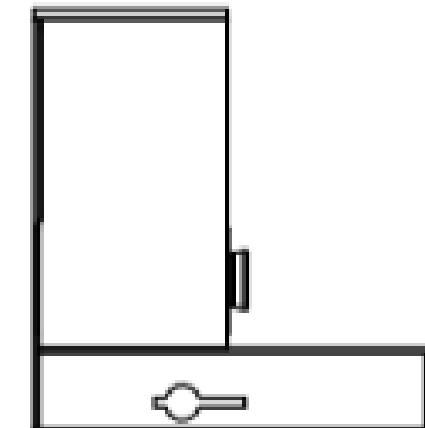
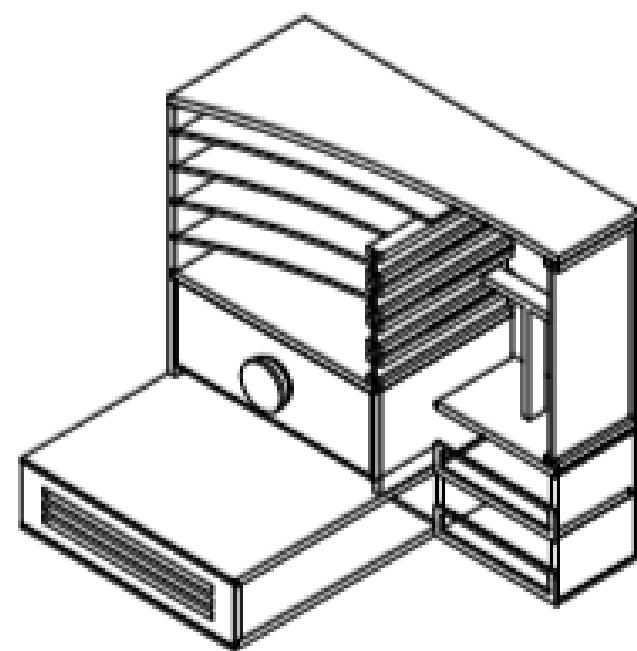
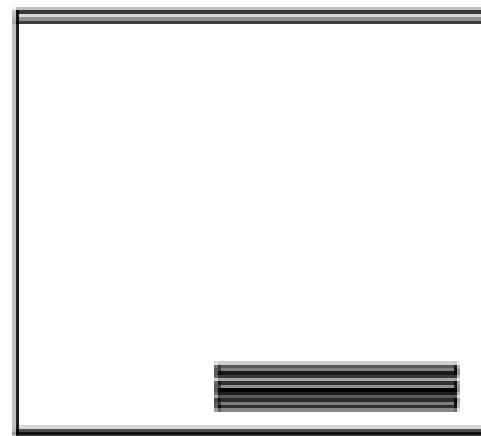
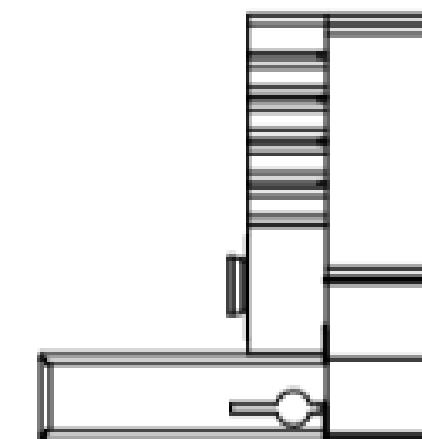
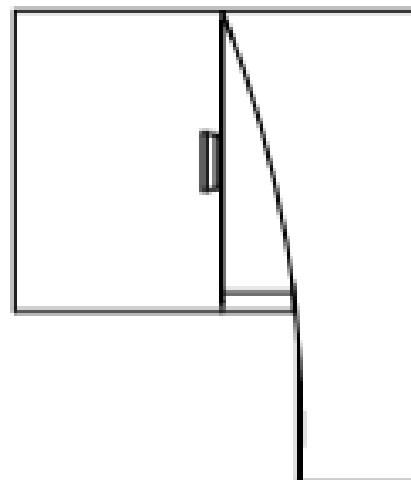
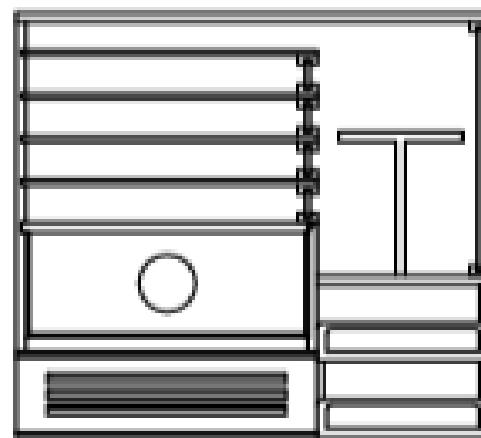


CAD - Final Design

Section overview: On this page, I will be showcasing my final design idea, covering parts of the design, joining methods and uses of designs/parts.



CAD – Orthographic Drawing



UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETRES							
A4 SIZE = 210 x 297 mm					DRAWN	TRUSTED	DATE
SURFACE FINISH ✓					CHECKED		
DO NOT SCALE DRAWING					APPROVED		
BREAK ALL SHARP EDGES AND REMOVE BLURFS							
FIRST ANGLE PROJECTION		MATERIAL	FINISH			REV.	
A4		DRAWN NO.			REV.		
SCALE 1:10		MATERIAL			1 of 1		

Material Management

Section overview:

In this section, I have detailed the different types of materials used along with their dimensions, length, width and thickness. It will also include the price of the materials and the percentage of each material that will be used and the percentage which will be wasted.

5mm Acrylic plastic

Percentage used: 69%

Percentage wasted: 31%

Cost: sheet price - £24.97

9mm Birch faced plywood

Percentage used: 40%

Percentage wasted: 60%

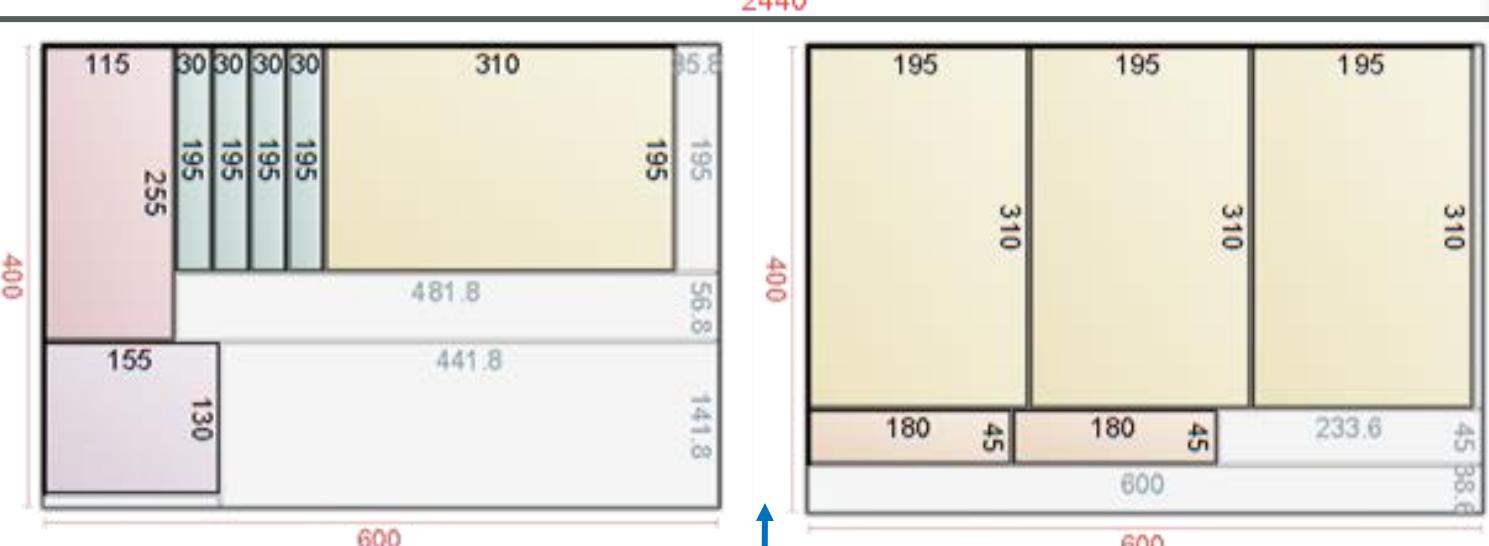
Cost: sheet price - £35.70

9mm Birch Faced Plywood

**Sheets used: 1
Percentage used: 40%**

**Sheet size:
2440mm X
1220mm**

Parts	Length (mm)	Width (mm)	Quantity
Top piece	495	202.5	1
Back wall piece	495	430	1
Base piece	495	420	1
Console ventilation piece	315	80	1
Console compartment Back piece	405	80	1
Controller compartment side pieces (X2)	110	80	2
Controller & console compartment splitter	115	80	1
Middle section base	495	415	1
Shelf support piece	345	197.5	1
Drawer base	290	200	1
Drawer sides (X2)	200	110	2
Drawer front (X1) and back (X1)	290	107	2
Drawer handle	60	60	1
Controller top piece	185	115	1
Drawer and controller compartment splitter	195	135	1
Upper(X1) and lower (X1) panel slots	115	20	2
Upper (X4) and lower(X4) middle panel slots	195	20	8
Total price	40% of £35.70 = £14.28		



Parts	Length (mm)	Width (mm)	Quantity
Headphone hanger	155	130	1
Panel	255	115	1
Shelf piece	310	195	4
Headphone hanger and shelf compartment splitter	105	30	4
Controller compartment flaps	180	45	2
Total Price	69% of £24.97 = £17.23		

Risk Assessment

Equipment	Hazard	Risk	People at Risk	Control Measure	Review
Laser cutter	Fume Exposure	The material being cut may begin to produce harmful fumes which affect the lungs.	Student and people around.	Ensure extraction system is on and don't inhale when the lid is opened.	
	Fire	Possible risk of burns if the casing is opened and smoke particles in the respiratory system.	Individual controlling the machine.	Check extraction system is on and no foreign item is inside the cutter.	
	Laser beam	Eye injuries and burns / skins damage.	Individual controlling the machine.	Keep the safety lid shut until the laser turns off.	
Hand Router	Ejected work	Impact injuries to the skin and eyes.	Student and people around.	Use PPE (goggles) to stop eye injuries.	
	Spinning cutting bit	The skin may be shredded if contact is made with the cutting bit while its spinning. This can also cause entanglement of clothing – leading to the user being dragged towards the blade.	Individual controlling the machine.	Wait for the rotation to stop before lifting the hand router of the piece of work.	
	Dust	Respiratory irritation and eye irritation can occur.	Student and people around.	Use (PPE) Respiratory protection mask.	
	Noise	Hearing injuries – which may lead to dizziness.	Individual controlling the machine.	Use (PPE) Hearing protection.	
Disc sander	Burning material	Material can heat up causing flames and burns to the skin.	Individual controlling the machine and people around.	Move the work side to side to prevent friction from building up in one area.	
	Dust and particles	Respiratory irritation and eye irritation can occur.	Student and people around.	Use (PPE) Respiratory protection mask.	
	Spinning disc	The skin may be shredded by the grains on the spinning disc. Pieces of clothing can get entangled – pulling the user towards the disc which can cause grazes to the skin.	Individual controlling the machine.	Don't touch the disc while it's spinning. Keep all hair tied back. Ensure all loose clothing is tucked away.	
	Noise	Hearing injuries – which may lead to dizziness.	Individual controlling the machine and surrounding people.	Use (PPE) Hearing protection.	
Cordless Drill	Ejected work	Impact injuries to the skin and eyes injuries such as blindness.	Student and people around.	Use PPE (goggles, Hand and arm protection) to stop injuries.	
	Vibration	Hand/Arm Vibration Syndrome.	Individual controlling the machine.	Select a low power level or don't use the drill for prolonged period of time.	
	Spinning drill bit	Pieces of clothing can get entangled – causing loss of control of the drill, leading to lacerations.	Individual controlling the machine.	Ensure all loose clothing is secured or taken off.	
Table saw	Saw dust	Respiratory irritation and eye irritation may occur.	Student and people around.	Use (PPE) Respiratory protection mask.	
	Ejected work	Projectile injuries to the skin or eyes leading to cuts or blindness.	Student and people around.		
	Spinning blade	Loose clothing will likely be cut and severe lacerations can be caused if the blade comes in contact with the skin.	Individual controlling the machine.	Ensure all loose clothing is secured or taken off.	
	Noise	Hearing injuries – which may lead to dizziness.	Individual controlling the machine and people around.	Use (PPE) Hearing protection.	
Band saw	Saw dust	Respiratory irritation and eye irritation may occur.	Student and people around.	Use (PPE) Respiratory protection mask.	
	Rotating blade	Entanglement of thick clothing which will pull the user towards the blade – causing lacerations.	Individual controlling the machine.	Ensure all loose clothing is secured or taken off.	
	Noise	Hearing injuries – which may lead to dizziness.	Individual controlling the machine and people around.	Use (PPE) Hearing protection.	
Chisel	Blade	Severe laceration if the blade drops on the skin.	Individual using the tool and people around.	Do not use the chisel in the direction facing your body.	
	Ejected work / particles	Particles of wood may be ejected causing damage to the eyes.	Individual using the tool.	Use PPE (goggles) to stop eye injuries.	
Bobbing sander	Dust and particles	Respiratory irritation and eye irritation can occur.	Student and people around.	Use (PPE) Respiratory protection mask.	
	Spinning cylinder	Entanglement of clothing, hair and grazing of the skin.	Individual controlling the machine.	Ensure all loose clothing and hair is secured or taken off.	
	Burning material	Material will heat up if left for too long causing burns to the skin.	Individual controlling the machine and people around.	Move the work side to side to prevent friction from building up in one area.	

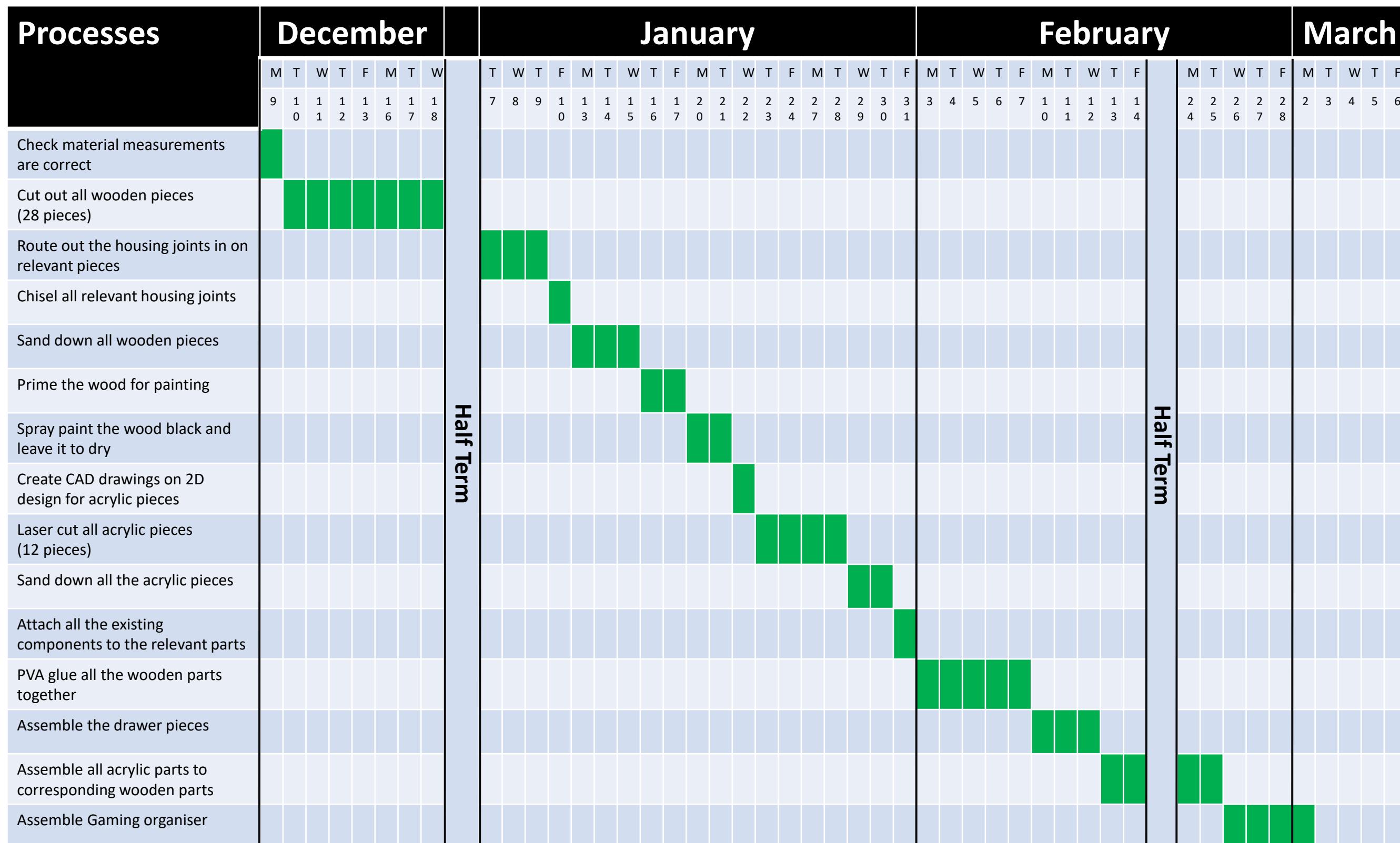
Existing Components

<u>Component Name</u>	<u>Picture of Component</u>	<u>Advantages</u>	<u>Disadvantages</u>
9.5mm Screw (X16)	(EBay) 	<ul style="list-style-type: none"> The screws come in sufficient numbers while remaining cheap. The screw head is standardised, meaning standard screwdrivers can be used on the screws. It's strong meaning that it can hold up significant weight. Also, the screws threads are even, meaning it can be easily removed without damaging the wood. 	<ul style="list-style-type: none"> The screws are small, meaning they will be difficult to handle when installing. One the notch of the screw is faded, it cannot be fixed. If the screw is installed improperly, it will damage the material. Screw head creates an unappealing look. The screw tip may protrude out if it is screwed in too deep.
76mm Butt Hinge (X4)	(Wickes) 	<ul style="list-style-type: none"> One end of the hinge is smaller than the other allowing the hinge to work with smaller pieces. It is made from brass, meaning it can hold up considerable weight. The hinge has four anchor points meaning it will be sturdy. The holes for the screws are standardised meaning the screws can be replaced. 	<ul style="list-style-type: none"> The joints of the hinge protrudes out of the design, making it aesthetically unpleasant. As the hinge has a gap in the middle, this allows it to bend easier – meaning its holding strength will be reduced. After repeated use, the joints need lubricant or it will become stiff.
200mm Runners (X2)	(Amazon) 	<ul style="list-style-type: none"> The runners are made from steel, plated with zinc – making it strong it is of strong strength and durable. It is 12 mm thick making it suitable for 9mm wood. Returns are accepted if the sizes do not match. The runners are ball bearing meaning it will be quiet. 	<ul style="list-style-type: none"> Its installation process requires the wood to be routed into making it hard to install. The drawers can only extend out as much as the runner allows. The drawer cannot be taken out of the unit without removing the runners first. They may get till after continuous use.

Gantt Chart

Section overview: This page shows a chart showing the amount of time I estimate it will take me to make my product – setting deadlines for each part of the making process, to ensure time is being used as effective as possible in order to produce a product to its highest quality. This chart will also allow me to keep track of my progress in my manufacture to alert me to when I need to move on to another stage.

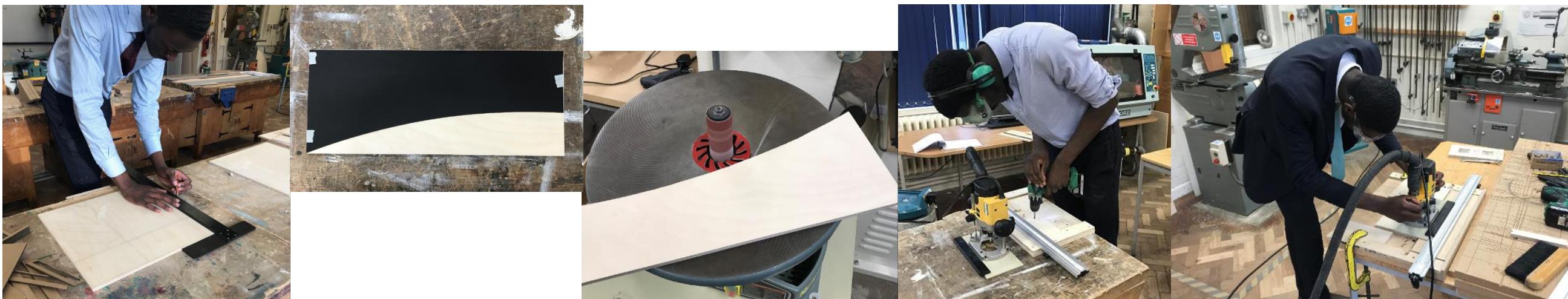
While manufacturing, problems may occur which may cause my production to be delayed. As of this, I have allowed excess time to complete complex procedures to account for the possibilities of problems arising. With the extra time added to allow my design, this still allows me to finish my producing with 4 days to the deadline – allowing me 4 days to ensure all parts are working well and each of my clients requirements have been met.



Production Plan					
Processes	Time Duration (Mins)	Materials	Equipment	Safety Measures	Quality Control
Mark out dimensions on wooden stock sheet with templates	60	9mm Birch Faced Plywood	Pencil, Steel metre rule, Template, Try square	N/A	Use a try square to maintain right angles, steel rules for straight lines and templates to confirm its correct.
Cut out pieces from the wooden stock sheet	300	9mm Birch Faced Plywood	Table saw, Band saw, Guide, vacuum extraction	Goggles, Guard, Apron and extraction	Use a material guide to keep the wood straight and cut with the grain to avoid the wood from splitting.
Laminate all panel slot pieces (to get a 20mm thickness)	2880 (2 days)	9mm Birch Faced Plywood	PVA glue, Clamps, Jigs	Gloves	Make sure the PVA glue is distributed evenly and wipe all excess glue off the edges to get a clean look.
Mark out the routing dimensions with a template	30	9mm Birch Faced Plywood	Pencil, Steel metre rule, Template, Try square	N/A	User a template to ensure the measurements are correct and a try square to check the corners.
Route out rabbet joint on the base pieces	120	9mm Birch Faced Plywood	Hand router, Vacuum, camps extraction, Jig, extension cable	Goggles, respiratory mask, apron & extraction	Check routing bit is set to the right depth using a steel rule to double check. Also, ensure that the material is secured correctly using clamps and other necessary tools. Make sure the hand router is being pushed in the opposite direction the routing bit is spinning. Allow the routing bit to start spinning before placing it on the material to prevent the from material form splitting. Do not keep the spinning blade bit in one spot for too long to prevent the material from burning.
Route out rabbet joints for the console compartment pieces	30	9mm Birch Faced Plywood	Hand router, Vacuum, camps extraction, Jig, extension cable	Goggles, respiratory mask, apron & extraction	
Route out rabbet joints for the controller compartment pieces	30	9mm Birch Faced Plywood	Hand router, Vacuum, camps extraction, Jig, extension cable	Goggles, respiratory mask, apron & extraction	
Route out controller top piece housing joint	10	9mm Birch Faced Plywood	Hand router, Vacuum, camps extraction, Jig, extension cable	Goggles, respiratory mask, apron & extraction	
Route out housing joints on the shelf support pieces	40	9mm Birch Faced Plywood	Hand router, Vacuum, camps extraction, Jig, extension cable	Goggles, respiratory mask, apron & extraction	
Route out housing joints on the all the panel slots	60	9mm Birch Faced Plywood	Hand router, Vacuum, camps extraction, Jig, extension cable	Goggles, respiratory mask, apron & extraction	
Route out console ventilation piece vent slots	20	9mm Birch Faced Plywood	Hand router, Vacuum, camps extraction, Jig, extension cable	Goggles, respiratory mask, apron & extraction	
Route out back wall piece vent slots	20	9mm Birch Faced Plywood	Hand router, Vacuum, camps extraction, Jig, extension cable	Goggles, respiratory mask, apron & extraction	
Drill console compartment back piece for the wire holes	30	9mm Birch Faced Plywood	Cordless drill, Pillar drill, coping saw	Goggles and Apron	Mark out the centre point for the drill and push the pillar drill down slowly to prevent wood splitting.
Chisel all routed corners to get them at right angles	60	9mm Birch Faced Plywood	Chisel and a vice	Goggles and training	
Sand down all the wooden pieces	120	9mm Birch Faced Plywood	Disc sander, sand paper, wet and dry glass paper	Respiratory mask, Goggles and Apron	Use a guide set at a right angle to prevent sanding at an angle and sand with the grain with the sand paper.
Prime wood pieces for painting, then paint the wooden pieces	4320 (3 day)	9mm Birch Faced Plywood	Wood primer, Black paint, Paint roller	Gloves	Paint with the grain of the wood and also put multiple layers of paint for a better finish.
Create CAD drawing on 2D design for the acrylic shelf pieces	20	Red Pigment 5mm Acrylic Plastic	Computer, 2D design with a CAM software	N/A	N/A
Laser cut the acrylic shelf pieces with Cad drawing (X4)	120	Red Pigment 5mm Acrylic Plastic	Laser cutter	Ensure extraction is on and the lid is shut	N/A

Production Plan					
Processes	Time Duration (Mins)	Materials	Equipment	Safety Measures	Quality Control
Create CAD drawing on 2D design for headphone hanger and shelf compartment splitter	20	Red Pigment 5mm Acrylic Plastic	Computer, 2D design with a CAM software	N/A	N/A
Laser cut headphone hanger and shelf compartment splitter (X4)	60	Red Pigment 5mm Acrylic Plastic	Laser cutter	Ensure extraction is on and the lid is shut	Ensure the acrylic is cut to the right size to fit in the laser cutter.
Create CAD drawing on 2D design for the acrylic panel	10	Red Pigment 5mm Acrylic Plastic	Computer, 2D design with a CAM software	N/A	N/A
Laser cut the panel	30	Red Pigment 5mm Acrylic Plastic	Laser cutter	Ensure extraction is on and the lid is shut	Ensure the acrylic is cut to the right size to fit in the laser cutter.
Create CAD drawing on 2D design for the acrylic controller flaps	40	Red Pigment 5mm Acrylic Plastic	Computer, 2D design with a CAM software	N/A	N/A
Laser cut acrylic controller flap (X2)	60	Red Pigment 5mm Acrylic Plastic	Laser cutter	Ensure extraction is on and the lid is shut	Ensure the acrylic is cut to the right size to fit in the laser cutter.
Create CAD drawing on 2D design for the headphone hanger piece	20	Red Pigment 5mm Acrylic Plastic	Computer, 2D design with a CAM software	N/A	N/A
Laser cut headphone hanger pieces (X3)	120	Red Pigment 5mm Acrylic Plastic	Laser cutter	Ensure extraction is on and the lid is shut	Ensure the acrylic is cut to the right size to fit in the laser cutter.
Laminate headphone hanger pieces together to make it 25mm thick	2880 (2 days)	Red Pigment 5mm Acrylic Plastic	PVA glue, Clamps, Jigs	Gloves	Make sure the PVA glue is distributed evenly and wipe all excess glue off the edges to get a clean look.
Sand down all the acrylic pieces with fine grain sanding paper	120	Red Pigment 5mm Acrylic Plastic	Fine grain glass paper	Respiratory mask, and an Apron	Do not sand over the corners of the acrylic to avoid scratching the surface.
Route out housing joints for the runners	30	9mm Birch Faced Plywood	Hand router and chisel	Goggles, respiratory mask, apron & extraction	Check routing bit is set to the right depth using a steel rule to double check.
Install runners for the drawers	120	9mm Birch Faced Plywood	Screws and screwdriver	N/A	Make sure the screws are screwed in straight to prevent the wood from splitting.
Laminate drawer handle pieces together (X3)	2880 (2 days)	9mm Birch Faced Plywood	PVA glue, Clamps, Jigs	Gloves	Make sure the PVA glue is distributed evenly and wipe all excess glue off the edges to get a clean look.
Assemble drawer pieces with PVA glue	1440 (1 day)	9mm Birch Faced Plywood	PVA glue and Clamps	Gloves	Make sure the PVA glue is distributed evenly and wipe all excess glue off the edges to get a clean look.
Install hinges to the controller compartment splitter	40	9mm Birch Faced Plywood	Screws, cordless drill and screwdrivers	N/A	Ensure the screw does not protrude the thickness of the material to prevent injuries to the user.
Attach the other end of the hinge to the acrylic pieces	20	Red Pigment 5mm Acrylic Plastic	PVA glue	N/A	N/A
PVA glue all the wooden piece together	2880 (2 days)	9mm Birch Faced Plywood	PVA glue and clamps	Gloves	Ensure all the excess glue is wiped off to maintain a clean aesthetic look.
Slot in the acrylic pieces to the housing joints	10	Red Pigment 5mm Acrylic Plastic	N/A	N/A	N/A

Record Of Manufacture (1)



In the first stages of my production, my stock sheet of 9mm plywood was cut into smaller section using a table saw and I began by marking out my lines on the wood using a sharp pencil, tri squares and templates in order to maintain precision in my work. All measurements were checked over to ensure that the markings were the correct lengths to prevent mistakes and reduce wastage of materials.

After marking out my pieces I began with my top pieces by using a jig saw to cut out the curved shape and then used a bobbing sander to refine the curve and make it as smooth as possible before sanding it down with sanding paper.

I then proceeded unto the routing stages by making a small routing table for my smaller 9mm pieces – using blocks of wood screwed beside my work to use as a wedge to stop it from moving around while I was using the router. While using the router and cordless drill I maintained health and safety measures by wearing safety specs, wearing a dust mask, ear defenders and tucked in loose pieces of clothing to prevent entanglement. Following this, I routed my ventilation slots and housing joints into all the necessary places on my pieces of wood.



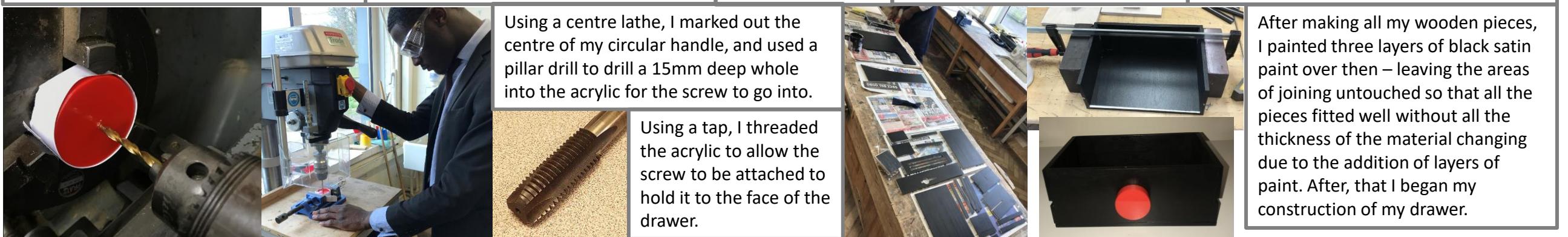
To refine all the right angled corners of my routings and housing joints, I uses a chisel to remove un finished corners of my work. While chiselling, I used a chisel block to maintain the quality of my work and wore goggles to prevent ejected work from entering my eyes.

To make the holes for the wires to pass through, I used a hand brace to drill a hole through my work and sanded it down with sanding paper to remove all splinters and make it as circular as possible. While doing this I wore goggles to protect my eyes from ejected work.

Using a saw I cut out my bases pieces to get the 'L' shape of my work and chiselled the corners and sanded them.

Next, to make my panel support pieces, I used a routing table with the router positioned upside down to route the slots I needed. I used a push stick to move the pieces through to protect my fingers from lacerations.

After, I drew out my handle pieces on 2D design and laser cut them out. I then used superglue to glue them together and used wet and dry sanding paper to refine the corners of the acrylic so they were all level.



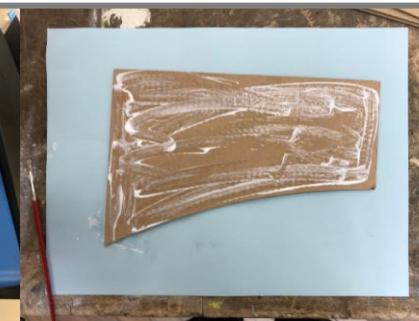
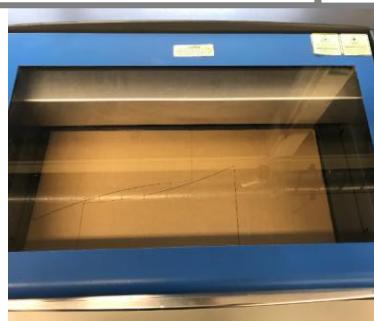
Record Of Manufacture (2)



When I began the construction of my bottom layer, applied PVA glue to the housing joints routed into my base and slotted the pieces it. As of the pieces that needed to be attached at the edges of the base, I applied PVA glue to the rabbets and supported the pieces with right angled weights to keep them straight while they dried.

To make my top controller compartment, I used a right angled weight to support the structure while it dried with PVA glue applied in the housing joint.

Next, I waited for the first two layers of the structure to dry as I would need to apply the back piece on next and that needed a sturdy structure to apply as it needed to be clamped on at multiple points in order to ensure a stable structure. As seen in the picture on the far right, I used weights and clamps to hold the back piece on while it dried.



After not being able to install runners for my drawers, I decided to make platforms for my drawer to slide on. I did this by cutting out two strips of wood and attaching them with epoxy resin to the walls of the drawer compartment. I then routed two slots at each end of the drawer to allow the drawers to slide on.

To ensure that all my acrylic pieces slotted in properly, I made cardboard models of the pieces of acrylic with the laser cutter and doubled up the card board to get the correct thickness of the acrylic for property testing. From the testing I discovered that the headphone stand was not stable enough so I changed the design to add a base to the headphone stand to make it more stable. After I used the cardboard pieces to test, I then made CAD 2D design drawings of the improved version and laser cut them out.

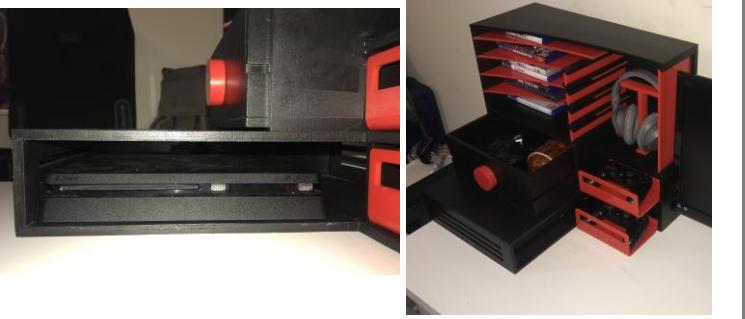
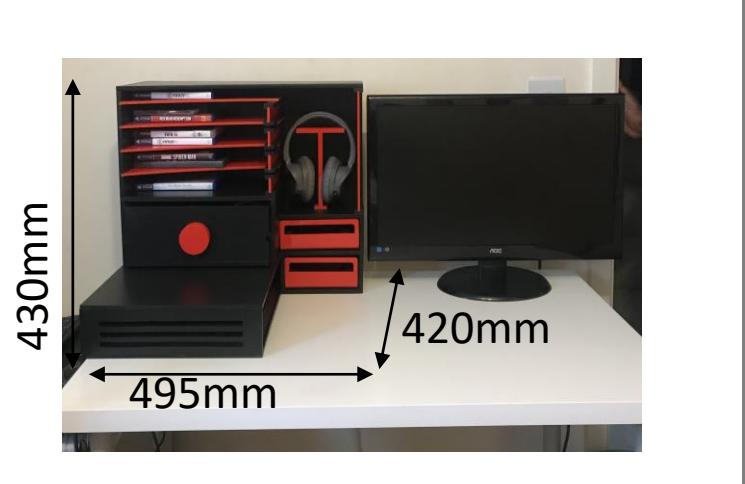
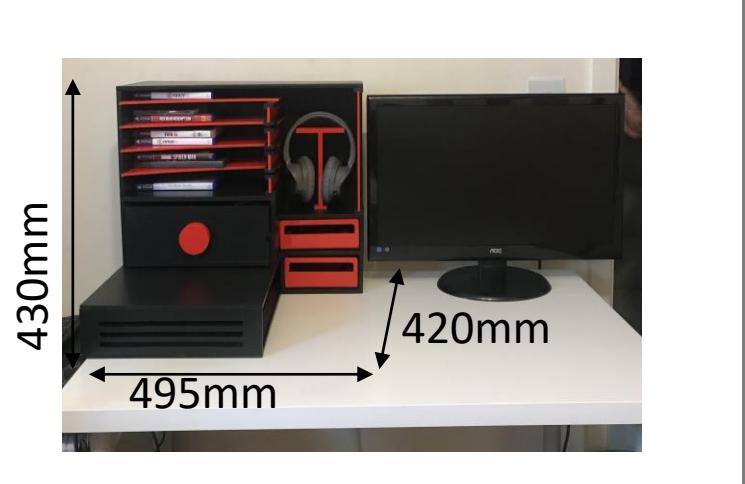


I then laminated the headphone stand pieces together. This allowed me to increase the thickness of the headphone stand so that it is suitable to hold headphones securely. While doing this I placed the top of the 'T' shaped headphone holder on a flat jig to ensure that the pieces were glued on straight.

In the next stage, after testing and realisation that I would not attach my controller compartment flaps with hinges to the wood due to aesthetical reasons and it not being functional, I decided to replace the flaps with traps which I made by laser cutting the shape out and line bending it into shape.



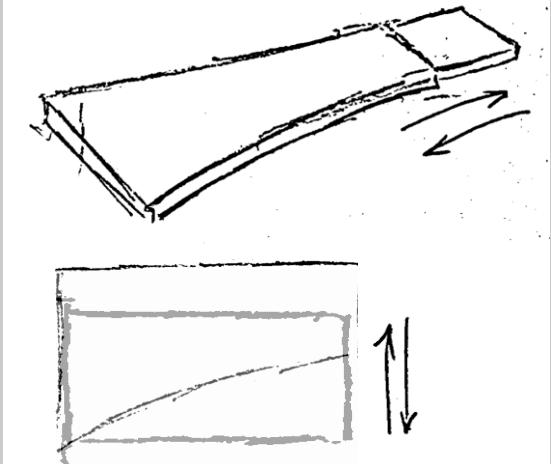
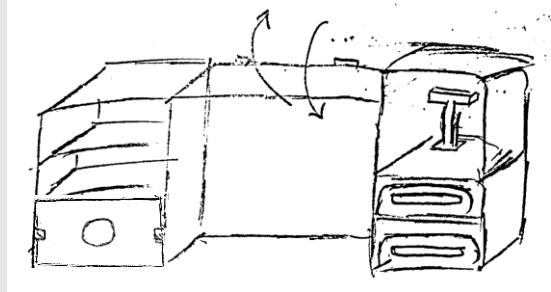
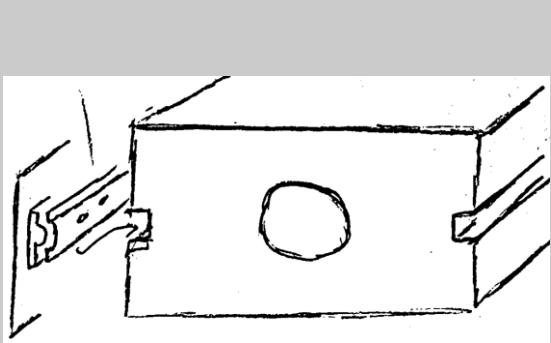
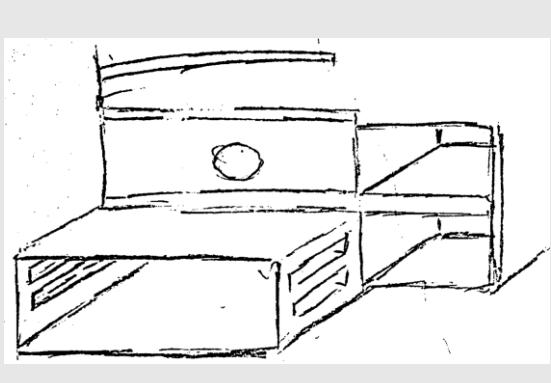
Client Trial and Testing

<p>Specifications</p> <p><u>Function</u> The storage unit must be able to hold gaming equipment in a compact form to reduce the space used on the desk. As my client is also a student, the unit may be used for other items, so the unit must be multifunctional so they can store other studying items.</p>	<p>Test</p> 	<p>Result</p> <p>From the tests, the gaming storage unit is able to fulfil the client requests for the function of the storage unit as it holds the PS4 and other gaming items. This includes headphones, controllers, game DVD cases and other smaller items such as wires and cables in the drawer. Furthermore the storage unit also has space of items such as books on the shelves and space for smaller utility items such as pens inside the drawer unit.</p>	<p>Client review</p>  <p>After consulting my client, one of the things Peter was most pleased</p>										
<p><u>Cost</u> My client is a part time YouTube entertainer and has a budget of £100 meaning the price must be below this – accounting for production method and materials. A reasonable price would be £65.</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #4f81bd; color: white;">Assets</th><th style="background-color: #4f81bd; color: white;">Cost (£)</th></tr> </thead> <tbody> <tr> <td>Stock plywood and acrylic</td><td>42.79</td></tr> <tr> <td>Finishing</td><td>15</td></tr> <tr> <td>Bought in components</td><td>0.50</td></tr> <tr> <td>Total</td><td>58.29</td></tr> </tbody> </table>	Assets	Cost (£)	Stock plywood and acrylic	42.79	Finishing	15	Bought in components	0.50	Total	58.29	<p>In total, my design costs £58.29 which falls into my clients specifications for how much the unit should cost. As my client is a part time worker, he request not to spend over £100 as that was his budget. This allows my client to save possibly £40 which can be used for his personal needs or to fund another project which would fulfil his needs.</p> <p>This is a positive result because it shows that the production methods of my design was good as little material was wasted – hence the low costs.</p>	 <p>With was the that the unit had ventilation systems and exits for the wires from his console to pass through without inconvenience. This is he would not have to worry about his console over heating and getting damaged and also, his wires wouldn't have to be twisted in order for it to be plugged into the wall.</p> <p>Furthermore, my client was pleased with the removal of the controller flaps as they were replaced by the trays. He believes that they serve a better functionality as the controller couldn't fall out of the unit anyways so the flaps in front of them didn't serve and important purpose.</p>
Assets	Cost (£)												
Stock plywood and acrylic	42.79												
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Bought in components	0.50												
Total	58.29												
<p><u>Size</u> This product is intended to be on my client's table with the measurements of 1000mm in length and the width 700mm. This means the measurements cannot exceed 500mm X 500mm. The DVD shelves must be large enough to fit the standard DVD packaging size which is 180mm X 120mm and 20mm tall.</p>		<p>From the images, it is clear that my design has fulfilled Peter requests (my client) as it does not take up more than half the length of his desk and utilises the vertical storage space rather than the planar space. This allows my client to become organised and keep his gaming equipment tidy and distinct from his school work which the unit fulfills. My clients working space has also increased from its previous state as the desk is more organised and less desk space is used.</p>	<p>As for the addition of the trays. This allows my clients controllers be simply slotted into the tray and pushed it and pulled out when it needs to be taken out. This also reduces the wear and tear damage that would be done to the woodwork around the area and the tray simply slides in and out.</p> <p>Additionally, the need of the headphone stand was in question by my client as they could simply be placed in the drawer. However, my client was happy to see the addition of the stand as he suggested that it was more convenient as all he needed to do was hang them up. This stopped him from having to readjust the headphones to fit is head overtime he wanted to use it.</p>										
<p><u>Aesthetics</u> The aesthetics of this design will follow the design movements of Memphis and cubism. Components will have bright colour themes to match the inspiration. My client's table is white, so a colour to contrast the table will be needed – possibly black.</p>		<p>My client preferred cubism and Memphis design styles which is why inspired my design to take up the contrasting colours of black and red. The red comes from the Memphis movements bright colours and the black is to contrasts my clients white table which gives an aesthetically pleasing view. Furthermore, the aesthetics were also inspired by Ettore Sottsass' cabinet design which was a product designed under Memphis influence which suits my clients preferences of Memphis designs.</p>	<p>Summary</p> <p>Function: Fulfilled Cost: Fulfilled Size: Fulfilled but the caused it to take up some room around the console area. Aesthetics: Fulfilled</p>										

Evaluation

Heading	Specification	Evaluation	Modifications
Function	<ul style="list-style-type: none"> The storage unit must be able to hold gaming equipment in a compact form to reduce the space used on the desk. As my client is also a student, the unit may be used for other items, so the unit must be multifunctional so they can store other studying items. 	<ul style="list-style-type: none"> Space used of the desk was reduced as the unit utilises vertical storage over planar storage. The shelving unit are slightly too small to hold large books which means my client could only store DVD casings and smaller note books. 	<ul style="list-style-type: none"> Adding a platform to the top of the unit to balance a TV or monitor on would make it more functional. Creating an adjustable shelf size would allow my client to fit his books on the shelves as well.
User	<ul style="list-style-type: none"> My client's desk is in the corner of his room, so the unit must be able to fit in a corner to reduce the space used and prevent loss of small equipment. Also, my client is worried about his console overheating, as a result, the design must have a way to keep his console ventilated. 	<ul style="list-style-type: none"> The unit is designed to fit in a corner –hence the 'L' shape it takes up. This allows the user more space to spread work out over. There are two sets of ventilation walls on the console compartment which ensures that the console stays cool - preventing damage. 	<ul style="list-style-type: none"> My client would have liked his monitor to remain in the centre of his desk. This means that making a product that sits below or at both ends of the monitor would improve the ergonomics of the products function.
Sustainability and Environment	<ul style="list-style-type: none"> As my client cares for the environment, the product must be manufactured from recyclable materials or from a sustainable source (such as sustainable forests) like recycled woods, plastics or small amounts of metal. The product must also use low cost manufacture methods. This is to reduce the damage of energy mining on the environment. 	<ul style="list-style-type: none"> My product uses a small volume of plywood which is sustainable and also recyclable. Also, the amount of acrylic used is a lower percentage than that of the wood used – which meets my users requests. The processes used did not fulfil the low energy cost demand as it uses lots of laser cutting processes and electrical routing equipment's- which does not meet my clients request for low energy processes. 	<ul style="list-style-type: none"> N/A
Cost	<ul style="list-style-type: none"> My client is a part time YouTube entertainer and has a budget of £100 meaning the price must be below this – accounting for production method and materials. A reasonable price would be £65. 	<ul style="list-style-type: none"> The design could be improved if more of the £100 budget was utilised as runners would increase the build quality of the drawer and allow it to hold up more weight. 	<ul style="list-style-type: none"> Installing runners for the drawers to make it slide smoother as well as stronger and engraving slots for the acrylic trays to slide on would improve how easily the try is pulled in and out.
Ergonomics / size	<ul style="list-style-type: none"> This product is intended to be on my client's table with the measurements of 1000mm in length and the width 700mm. This means the measurements cannot exceed 500mm X 500mm. The DVD shelves must be large enough to fit the standard DVD packaging size which is 180mm X 120mm and 20mm tall. 	<ul style="list-style-type: none"> the compartment where the console is stored is larger than it needs to be which takes up more room than my client needs – although the product is within its size limits. Lengthening the acrylic shelves could help make the product more multifunctional as it already fits the DVD cases requirements but doesn't store books above A4 in size which was requested in the design brief by client. 	<ul style="list-style-type: none"> The size of the product is within the limits but the section where the console is stored takes up unnecessary space as it could be moved underneath the drawer compartment to save desk space. Making the shelving using slightly longer to fit books as well and DVD cases.
Aesthetics	<ul style="list-style-type: none"> The aesthetics of this design will follow the design movements of Memphis and cubism. Components will have bright colour themes to match the inspiration. My client's table is white, so a colour to contrast the table will be needed – possibly black. 	<ul style="list-style-type: none"> In this design, the shape of the product and the colour scheme show that there is the use of cubism and Memphis inspired colour theme by the work of Ettore Sottsass which was one of the leading designers in the Memphis design movement. 	<ul style="list-style-type: none"> The Memphis design style used a lot of angles. This could be reflected in the design of my acrylic pieces such as the shelves by giving them a more angular approach as well as a childish design theme to it.
Material and manufacture quality	<ul style="list-style-type: none"> At least two different types of materials to improve the aesthetics by creating contrast. My joining methods must be sturdy. This is to ensure that the unit can hold the weight of the gaming equipment. 	<ul style="list-style-type: none"> Red acrylic plastic and plywood painted black were used to create the contrast my client requested. The use of housing joints and epoxy resin when joining plastic to wood ensure the rigid structure of the design. 	<ul style="list-style-type: none"> As the red acrylic was inspired by Ettore Sottsass' 'Cabinet' which used see through red acrylic, I could implement that in my work to get a more aesthetically pleasing finish.
Safety	<ul style="list-style-type: none"> Removing sharp edges will be necessary for this design as it can cause injury to my client. There will be no loose pieces in this product because it can cause a choking hazard for any user with younger children around. 	<ul style="list-style-type: none"> The removal of sharp edges would have compromised the cubism aspect of the design so it was left in as it's meant to be on a table where there isn't a lot of movement. All small pieces were glued down meaning the structure is sturdy and there is no choking hazard for children. 	<ul style="list-style-type: none"> As the design is meant to be in the corner of the table, a clamping system could be added to prevent it from falling off the table which means it can't injure the client and children cannot pull it down easily.

Modifications

Modifications	Proposed modification	Description and explanation of modification
<ul style="list-style-type: none"> Creating an adjustable shelf size would allow my client to fit his books on the shelves as well. 		<p>This modification of my shelf pieces is designed to extend the length of the shelf to allow books to fit on it as well as the game DVD cases. As the shelves are made from acrylic, it is hard to attach joints to make the shelf extendible. So in this improvement, there will be a thinner acrylic shelf pieces underneath the main one which would side out towards the right and in towards the left by the shelf sitting in a housing joint along the back piece.</p> <p>This means the length of the product would have to increase slightly as there would no by enough room from shelves to open into as the headphone stand would block it. Making the product longer would give space for the books to fit but it wouldn't take up the space my client needs as it would be behind the monitor on the desk.</p> <p>Another way of doing this is by placing another shelf pieces underneath the main one which slides forwards to extent the side of thins it can hold. This way,, the length of the whole product does not have to change as there is space for the shelf to come out into.</p>
<ul style="list-style-type: none"> My client would have liked his monitor to remain in the centre of his desk. This means that making a product that sits below or at both ends of the monitor would improve the ergonomics of the products function. 		<p>In this improvement, the components of the desk organiser has to split to the ends of the table. The reason for this is so that my client can place his monitor in the centre of his desk for better aesthetics. The headphone stand and controller compartments remain in the same place on he right and the shelves and drawer remain on the left. As for the controller compartment, if my client decides to place his screen in-between the two compartments, the console can red on top of the unit in the middle which can be collapsed. However, if the user wants their screen on top of the unit, the console can go in the middle section underneath the monitor. This gives my client better aesthetics and a better functioning product with freedom of arrangement of where they put their belongings.</p>
<ul style="list-style-type: none"> Installing runners for the drawers to make it slide smoother as well as stronger and engraving slots for the acrylic trays to slide on would improve how easily the try is pulled in and out. 		<p>As the drawer currently runs on two wooden rails, when the drawer is pulled out completely, the drawer falls out of its tracks unto the top of the console compartment which will scratch the drawer and the paintwork on that section over time. As of this using runners will prevent the drawer from falling out of its tracks when it is pulled out all the way.</p> <p>The use of runners will also allow the drawer to be able to slide in and out with less friction on the rails – meaning it would unction better and last longer.</p> <p>Furthermore, using runners rather than wooden rails would allow the drawer to be able to hold heaver items inside without it being t risk from breaking or detaching from the sides where it is attached.</p> <p>Likewise, for the acrylic trays for the controller, making housing joints at each end of walls that is sits between, would allow it to be able to be pulled out and put back in easier. It would also stop the trays from falling out of the compartment if it is pulled out too far – due to the lip at the back of it.</p>
<ul style="list-style-type: none"> The size of the product Is within the limits but the section where the console is stored takes up unnecessary space as it could be moved underneath the drawer compartment to save desk space. 		<p>In my final design of my product, the controller compartment had its opening facing the controller compartments, this means that there was some unused empty space underneath the drawer compartment which would be used. So by changing where the opening for the console compartment was, the unit could be made more compact as now there is less wasted space within the unit.</p> <p>In this modification, I placed the vents where the opening used to be and moved the opening to where one of the vents was. This allowed my to push the compartment deeper under the drawer where there was empty space previously.</p> <p>This modification has only positives to it as it saves more space on my clients desk, the console still remains well ventilated to avoid damages and also it is more accessible as the front of the console would be facing the client rather than facing across the desk.</p>