


This is a selection of Design & Technology- Product Design GCSE examination work 2019



Most of the primary user needs were included in this design. However, the only one was that there is not a clear indication of what to recycle. To improve this design I need to make sure that there is clearly shown what to recycle.

**Disassembly:** the bin is made out of stainless steel so its lifetime is estimated to be around 5 years. Once the end of its lifetime is approaching the bin is easily disassembled. The back door can be removed. The bumps will be removed from the holes so the door can be a separate part. The mob can be unscrewed and recycled. The piezoelectric material can be collected from the bottom of the bin and the rest is one piece so it will be recycled.

advantages	disadvantages
Unique way to present what to recycle	The head of the animal is just empty space and not used for something particular
Bright colours	People can throw anything inside the bin and it will accept it.
Animal shaped bin	The scan might be a little too high for young people to reach
The back door blends in to the design to make it look neat and natural	The tail might be dangerous if someone trips over it
It is tall to spot	the door can be easily opened by anyone
Large storage area	The head is empty so there is much space wasted
Aesthetically pleasing	The door is very easy to open as there are no hinges, so if it left open someone can trip and hurt themselves.
No rough edges for possible injuries	
Easy to figure out and access it	
Use of technology excites younger audience	
Appears friendly to children	
Easily replaces waste	

2nd initial idea

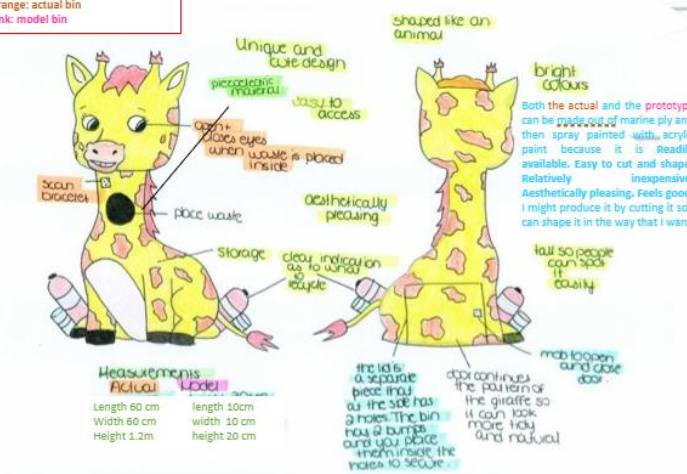
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52

53


54

**Turquoise:** materials, components and measurements  
**Yellow:** specifications  
**Orange:** actual bin  
**Pink:** model bin




**Measurements**  
**Actual**      **Model**  
 Length 80 cm      length 10cm  
 Width 80 cm      width 10 cm  
 Height 1.2m      height 20 cm

I created some miniatures made out of clay to test the sizes and the appearance of the bin overall. I quickly used some **hard clay** which helped me shape it into various shapes for my bins.



Then I made the giraffe one. The sizes were just as I wanted them to be but at the head there needs to be plastic bags placed inside or something to reduce the empty space. The dimensions were 3x3cm as base and 6cm height,




After looking at some bins I thought about the back door having bumps and holes to fit so it can open instead of components. Components may rust outside so I thought that this was a good idea. However, by not using components and using this method then it will be easy for anyone to open the door and kids might trip or injure their fingers if they trap them inside. This might be dangerous for the users.

**Conclusion:** I really like how this design is turning out. With more improvements and modifications this bin might turn out the ideal bin to place in a zoo area.

Link to contextual challenge: after I chose my 3 final ideas I had to look at them in more detail. By interviewing people, finding advantages and disadvantages and also creating a 3D model out of hard clay it really helped me figure out with which design I wanted to move forward and develop even more. By constantly analyzing everything and evaluating you will get the best results possible.

Previously, I interviewed 12 children, and this design seemed to be their favourite. Therefore I tried making improvements to make it even better. Client: this design is one of my favourite. It is easy to spot, cute and has bright colours which will definitely attract younger kids. There is too much empty space on the head which can be used to store empty bags. The way of presenting what to recycle is very unique and creative. I really like this design.



This is how the bin would be in front of a 1.80m tall man and a 1m tall girl. By doing this it gives me a clear indication if the scanner or outlet is placed in the right position for all people to access.



Eleni Demetriadou



## Alexandros Varnavides

### Quality Outcome

L010 (NO. 2019, LECTURE NO. 21450) Page 21/24

**Top View Without solar roof**

In the above image the a shot from above is seen with the solar roof removed here I have soldered the cables and also used tape to organize them neatly inside the body of the machine to make them easier to sort and also to change in case of a problem with the system and make the connections more accurate

**Electronics View**

To make the electronic connections I used a **PCB board** and soldered all the pieces on it using **non-leaded solder** to reduce emissions this was made to make the electronics more organized and user friendly

**FRONT View**

Here in the front view **please up** we can see the **touch-screen display** which has a **mat dark frame** to it distinguishes from the side. Also I have made according to my users suggestions in order to make it more distinguishable from the background which makes the display more visible and more aesthetically pleasing.

**Side View**

**Without front cover View**

Here the **magnetic pads** can be seen which were fixed using **screws** and thus the upper part can be intentionally removed to replace electronics but otherwise is **securely fixed** into place. On the upper part **ferromagnetic material** was attached by **screwing** to attach in the magnets.

**Front-low View**

The front **line-banded acrylic** gives a very nice finish to the build and also makes it distinguishable even in the night making the users easier to locate the machine and is precisely at the middle of the footings just like the original design keeping previous found anthropometrics

**Paying terminal close-up**

**Isometric View**

**Color code**  
Materials  
Processes  
Tools  
Need for accuracy

**CONCLUSIONS and explaining The Final outcome**

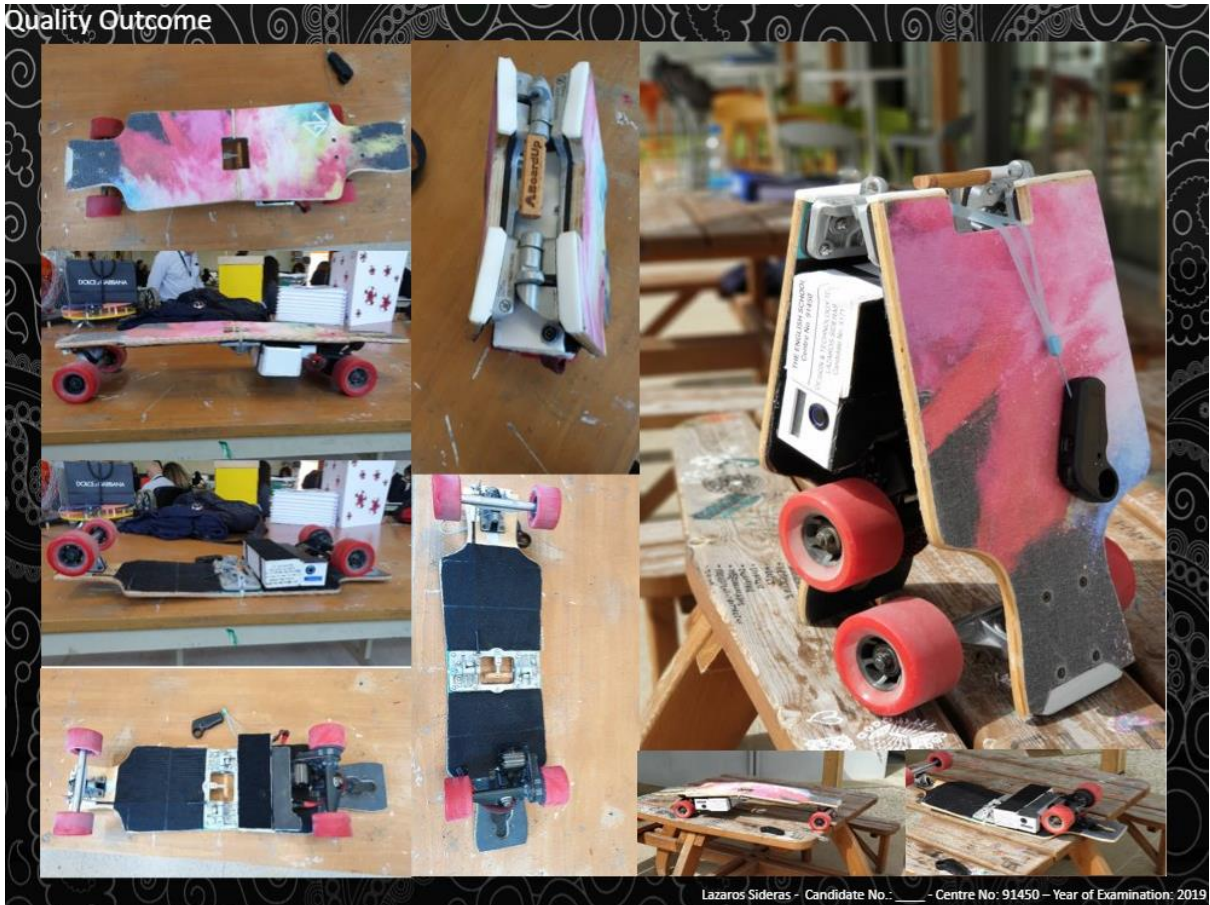
- Here you can see the **final outcome** as it was made into which is **very close** to the wanted outcome and **fully follows the design specifications** also it is functioning and videos showing the **functionality** will be shown in the testing sections
- I also **vacuum formed** the feet which are shown in the front-low view and they are made out of **High Impact Polystyrene** so that they can accept the **weight of a human** except functional reasons the formed fit also have an aesthetic reason as there light yellow colour gives a very nice finish to the machine and also clearly signal to the user where he can **place his feet** so he can be comfortable.
- The solar roof was also **line-banded** to form the shape and also has an **extension which provides shade** to the user which is something the user said was important to him and also makes the display visible even in **high intensity sunlight**.

**Target Market Feedback:**  
I very much like the final outcome of the machine and it surely gives a very satisfying aesthetic view of the machine which makes it **appealing to the user** and the combination of colors makes it look very **fabulous** additionally I like the way the solar roof is set onto the machine and extends on front just like the design and thus wells represents the original design. I also like the aluminum sheets which support the solar roof. Additionally I believe that the frames and the darker color around the end of the machine provide a very nice contrast balancing with very dark light which is further achieved by the overall black color of the machine. Additionally the shiny red front makes the machine easy to spot from a distance. Also the fingerprint is spot on usable and easy to locate

**Link to Contextual challenge:**  
The machine is successful onto being able to be spotted inside a festival and thus allows the user to easily locate it and pay thus putting him at an ease as the amount of money he needs to carry at a festival is reduced as he can now use this system to make all of his transactions  
It provides an authentication system using the fingerprint scanner and also follows the GDPR regulations and thus makes the machine safe to the user allowing him to trust the infrastructure and also the festival owner more likely to buy such a system  
Additionally the machine requires little electric power and no human assistance as it is completely autonomous allowing for fewer personnel and thus lower costs for the owner and also cuts down waiting lines furthermore making the experience at a festival more user friendly

## Gregoris Orphanides

Quality Outcome



Lazaros Sideris - Candidate No. 12345 - Centre No: 91450 - Year of Examination: 2019

Lazaros Sideris

**Front View**

**Plan view**

**Close ups of Inside**

**Colour Code:**  
Products  
Materials

**Conclusion and explaining the final outcome:**

Here is the final outcome. It looks almost as it was planned to look. I am analyzing it in the following slides.

**Front View:** this is the view which adults and tall people are going to use. The holes are inside the speech bubbles and the gifts are given from the 3 black rectangles. As there are 3 holes and 3 gift exchange places, it means that 3 different people can use that side at the same time except if all 3 of them want to throw the same material. That template was made using foam board. The design was designed by me and printed on the foam board. The length is 93cm and in real life it will be 3 times as big. The foam board was cut where it was printed from professionals, but I cut some edges using a craft knife. I used foam board as it was light and an excellent printing surface.

**Back View:** This is the side that children, short people or disabled people can use as the holes are at a lower level. The holes are on the animals at different places, including their mouth, nose and body. Once again 3 people can use this side at the same time, so a total of 6 people can use the product at the same time including the other side. The gifts fall once again at the bottom of each animal. This side is the side that will be used the most as this product will attract kids very easily, as the design looks appropriate to their age. This is because a child of their age has drawn it. If the kids cannot read, they can still understand as images of each material are placed inside the speech bubble. The design has been printed on foam board which was cut using a craft knife as it is very easy to cut straight lines and curves using it.

**Side View 1:** This side was again printed on foam board as it accepts good quality printing. The instructions on how to use it are portrayed on this side using icons. The icons are used so that everyone can understand them, even small children who cannot read. They will be able to understand from the pictures.

**Side View 2:** This side includes information on recycling. People who read it will learn more about about recycling and why zoo promotes it. Also, once they read it, an incentive is also created and they will want to help to solve the problem which exists. Unfortunately children which cannot read, will not be able to understand, but their parents could just say and explain it to them so that they are educated about it. The same process and material was used as before.

**Plan View:** The blue curve on top was made using a blue LDPE sheet and cut using a craft knife. I made holes and then screw it on the wooden frame using a screwdriver and screws. In order to hide them though, I added blue tape on top so that it looks more smooth, uniform and aesthetically pleasing. The fact that it is a curve is ideal as when it rains the water will slide instead of staying there. Therefore it makes it ideal from all weather conditions. LDPE is also waterproof.

**Close ups of inside:** Inside, are the sliding mechanisms which are screwed on the MDF pieces so that the bins can slide out for easy and accessible collection. Magnets are used on the doors as well.

**Back View**

The bins slide in and out with sliding mechanisms so that it is easy for collection.

**Side View 1**

The information on this side, gives instructions on how to use the machine. There are very simple so that people do not get confused. As there are no letters to read, even small children will be able to understand as they are made up of small drawings.

**Side View 2**

The information on this side of the prototype, explains why recycling is important and why it is important specifically at a zoo. Visitors will be more informed once they read it.

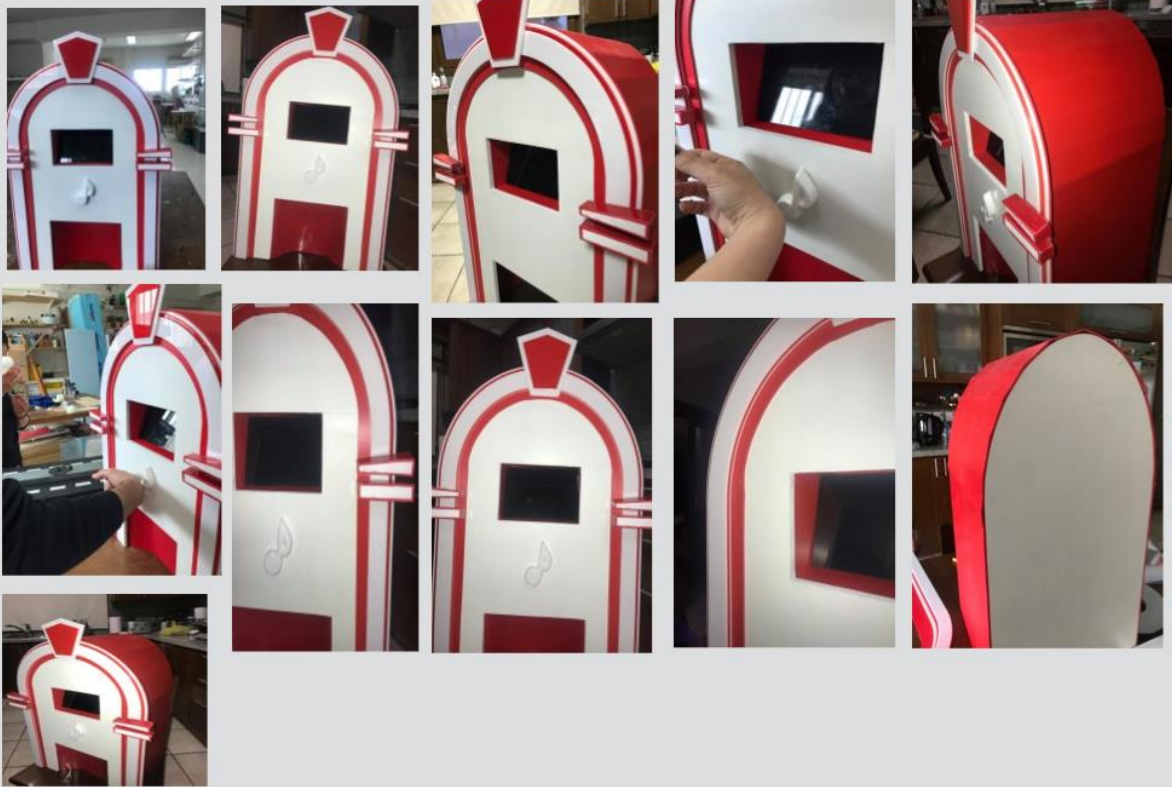
**Other Views**

The roof is a curve so that when it rains at the zoo, the water falls off rather than staying there and possible damaging inside parts.

**Target Market Feedback:**

As a persistent visitor of the zoo, I have to say that this is something every zoo needs. Seeing it finished it looks amazing. I would definitely use it all over again. Just the design itself creates the incentive to use it and the idea that it exchanges you with gifts is extraordinary. I love the fact that the roof is a curve which makes it ideal for any weather conditions. I love the 3 animals and the fact that a child drew them makes me want to use it even more. The instructions are simple and the information on the other side are very interesting. I also love that even disabled people can use it and they are not excluded like other products in the industry nowadays.

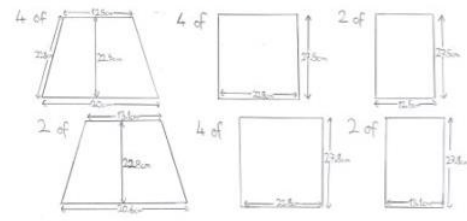
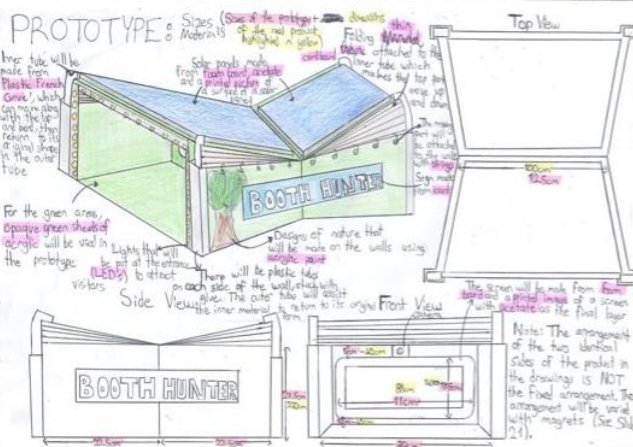
## Quality Outcome



Design & Technology (9-1) - Name: Maria Demetriou - Candidate number: - Centre number: 91450 - Year of examination: 2019

Maria Demetriou

# Chosen Idea



The image above show the dimensions of the walls that need to be cut for the prototype. For the prototype to disassemble, two layers are needed for the walls (Slide 20). The bottom row are the pieces with slightly bigger sizes.

Vinyl stickers are used as they are weatherproof and glossy finish.

### Tools:

- 1) Band Saw
- 2) Sanding Machine
- 3) Pillar Drill
- 4) Craft Knife
- 5) Double Syringe Epoxy Adhesive
- 6) Brushes
- 7) Hot Melt Glue Gun
- 8) Scissors

### Materials For Prototype:

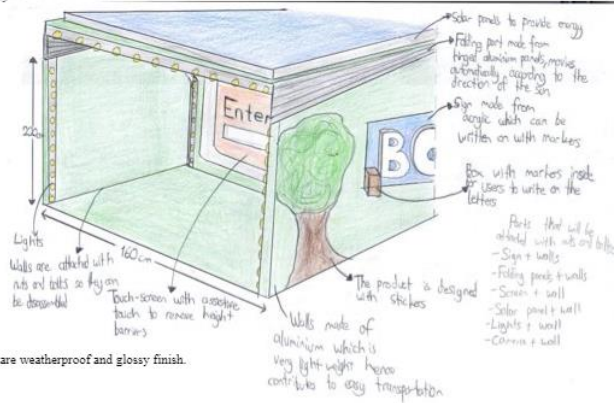
- 1) Foam Board
- 2) Acetate
- 3) Laminated Fabric
- 4) 3D Printed Hollow Tube
- 5) Card
- 6) Acrylic
- 7) 'Plastic French Curve'
- 8) String
- 9) Acrylic Paint
- 10) Magnets
- 11) Wires
- 12) Velcro
- 13) PVC Rectangular Tube

### Components:

- 1) LEDs
- 2) Battery

### Processes:

- 1) Cutting and sticking of the outer tube
- 2) Cutting of the acrylic walls with a band saw
- 3) Cutting of the card sign, printed paper and acetate with scissors
- 4) Cutting of the foam board with craft knife
- 5) Sanding of the acrylic with sanding machine
- 6) Cutting of the Plastic French Curve
- 7) Cutting of the card board with craft knife
- 8) Printing of the images



**Seat closed:**

Front view:



Back view:



Side view:



Key: materials  
measurements  
Specifications

**Seat open:**

Front view:



Side view:



**Extra fabric (flap):**

Flap above the handles:



Flap half open:



**Cover open:**

Zipper of the bottom part:



Flap below the handles:



Flap opened:



Zipper of the top part:



**CONCLUSION:**

The quality outcome came out pretty much like the one I designed at the beginning as my final design. I believe it satisfies almost all of my specification points. Firstly it is made for 3-5 year old children and it can boost their height while travelling as it has a 10cm height on the bottom part of it. Also it can be carried by both parent and child by 2 ways, as a handbag using the top handle and as a backpack using the handles that go on the client's shoulders. The cover is removable therefore it allows the client to be able to wash the cover whenever it gets dirty. Inside it we can see the Styrofoam which also has wadding on it on the sides where the child sits on, the wadding makes it more comfortable for the child to sit on the seat for as many hours as possible and also since it has a depth to it, it makes it even more comfortable. It also has a Velcro on the top and bottom part of the seat to make the seat stay put when carried as a bag. Also we can see the Velcro on the extra fabric to make it stick either on top of the handles (when the seat is not used as a bag) or below the handles (when it is used as a bag).

**Link to Chosen Contextual Challenge:**

**How can products be used to make people more comfortable when travelling?**

The wadding makes it more comfortable for the child to sit on the seat for as many hours as possible and also since it has a depth to it, it makes it even more comfortable.

Katerina Charalambous

## Quality Outcome



Taken from in front to show the area where the customer stands to collect and pay for the wristbands and also the lit Route ME sign.

To make the black acrylic screen look so smooth I rounded up the edges. The blue acrylic that the screen is on blends perfectly with the blue sticker at the bottom as they are the same shade of blue and both are shiny. Looks like a coherent part. The blue part was bent using line bending.



Here the back side of the booth can be seen, where the door opens to top up the wristbands and fix the electronic parts inside.

A plastic doorknob was added to open and close the door. In order to have such a finely cut door made by white acrylic I used the laser cutter. A frame in the second picture can be seen (the same material as the door), which is used so that the door has place to close on, so it doesn't swing back and forth.

Different views and close ups from different angles of the Route ME prototype booth.



Client feedback:

' First of all the combination of the colours blue and white are very appealing and relaxing to my eye which attracts people's attention. It looks like a structure that could be placed outside at the entrance of the festival.

The way it is set up shows that it has easy access, which will enable me to spent as less time as possible so the queue will be smaller. Lighting looks promising for night use.



In this section you can see the back angles of the booth during night time and day time using artificial lighting, to show the effect of the LED lighting implemented.

Using double sided tape I stuck the LED strip and battery above the sign so both the sign and in front of the booth was lit in order for the customer to be able to see during night time. On the right side you can see the intersection of the back side and left side are very smoothly put together, seems like it's a real life booth. Double sided tape was used in the place of any adhesive in order to avoid any getting spilled out of the intersection



Side views from right and left are shown at an angle to give the realistic feeling of a real size booth.

A lot of effort and skill was required to stick the stickers on the MDF sides that were cut using the band saw, to not let air bubbles and bumps be created. Also to create the smooth edges that merge with the blue acrylic I had to fold the sticker from the inside of the MDF.



Name: KYRIAKOS ATHIENTIS Candidate no.: 5255 Centre no.: 91450 Examination Year: 2019

27

Kyriakos Athientis

AS-A2 level Product Design work 2019



Bartu Harmandagli





Andreas Kallis



Athina Jordanou

## Final Product



Front of the desk when open



Front of the desk when closed



Diagonal view of the desk when open



## Testing: User Feedback

In order to test my design, I placed some books and objects onto the shelves and placed my working materials and a mug so as to model what it would look like when in use, and see how much weight could be placed onto the product. Additionally, I asked some users what they believed about the design and their comments on both aesthetics and functionality and I gathered some very good comments.

**Angeliki Allamenou:** I really like this product, I have never seen anything like it. I love how when it is closed it is as if it is just a simple box although the 'additional frame' (the legs) it appears as if there is a mystery inside. Once it is open, the mystery is unveiled and the shelves and pin-board make it seem very chic. Going onto the ergonomic view, it can withstand quite a lot of weight: having books on shelves and books and a laptop on the desk with any additional objects.

**Panayiotis Andreou:** This piece of furniture looks like something out of a store, manufactured in a factory or by a carpenter. All of the joints are rigid and the product as a whole can withstand a lot of weight and pressure. Moreover, it looks very aesthetically pleasing not only when it is open and in use but also when it is closed.

**Irene Hadjiioizi:** I find this design very practical as there is enough space for things to be placed onto the desk. Adding to that, the amount of storage space is perfect as there are two shelves and there is a pin-board that allows extra notes to be hung on there. I believe this product is a must have in any university dorm room. It matches all of my needs and wants in a desk and storage compartment.

## Artemis Dundovic



## Elena Zannetou

## FINAL DESIGN



Jenny Pitsillides

## Final Product



Front of the desk when open



Front of the desk when closed



Diagonal view of the desk when open



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## Artemis Dundovic



## Christina Kassapi



## Elina Christodoulou



Julia Constandinidou