

GOSLING DESIGNS

STEPHEN GOSLING - PORTFOLIO

# Contacts



[/stephen-gosling-32a358126/](#)



[sjgosling12@btinternet.com](mailto:sjgosling12@btinternet.com)



+44 (0)7534 340424

# Contents - Projects

- THE LAMBDA - O I CHAIR
- OneSpace - Modular workspace
- Molecular Music - Music maker
- Alaska Airline - First class tray
- Alee-Save Response Kit

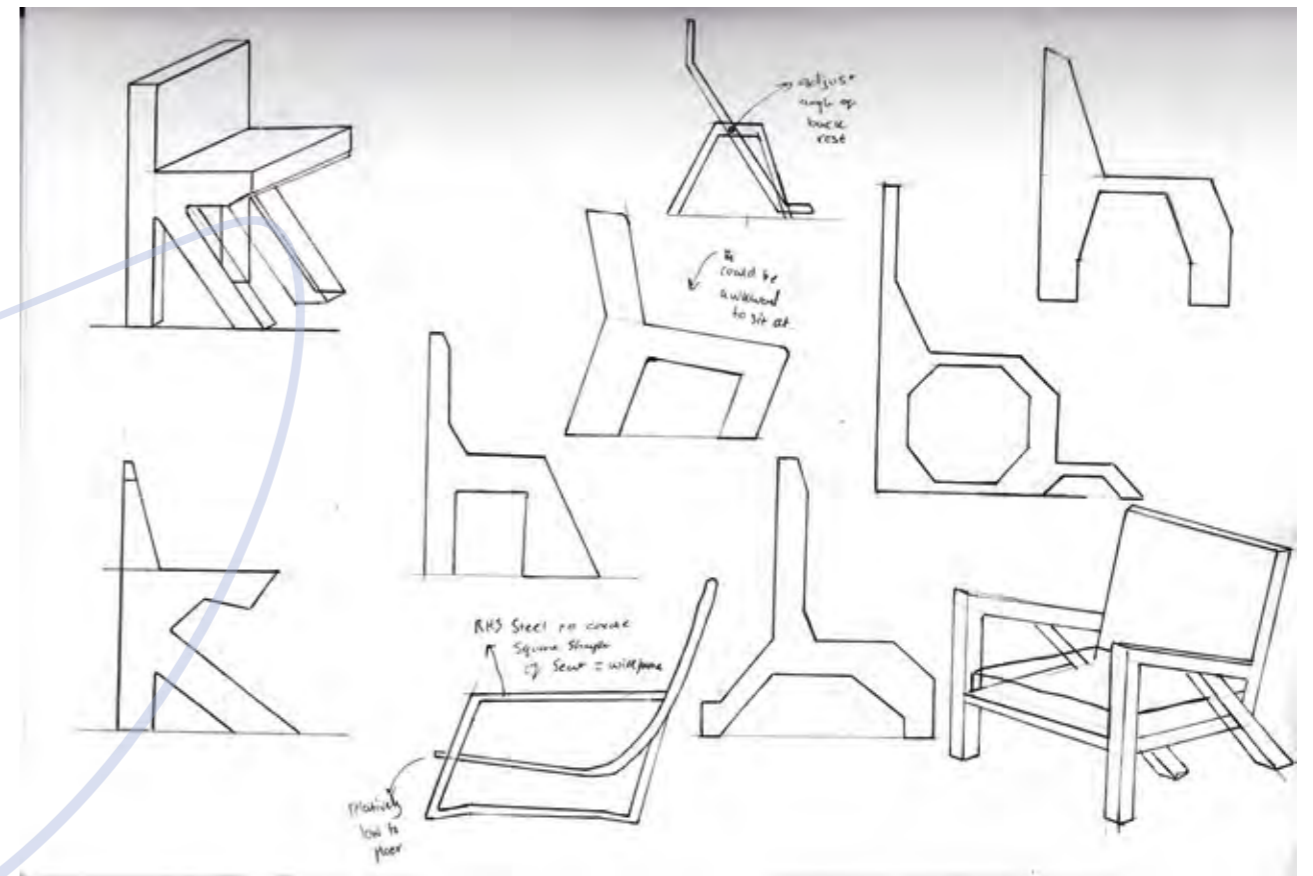
# THE LAMBDA - O I



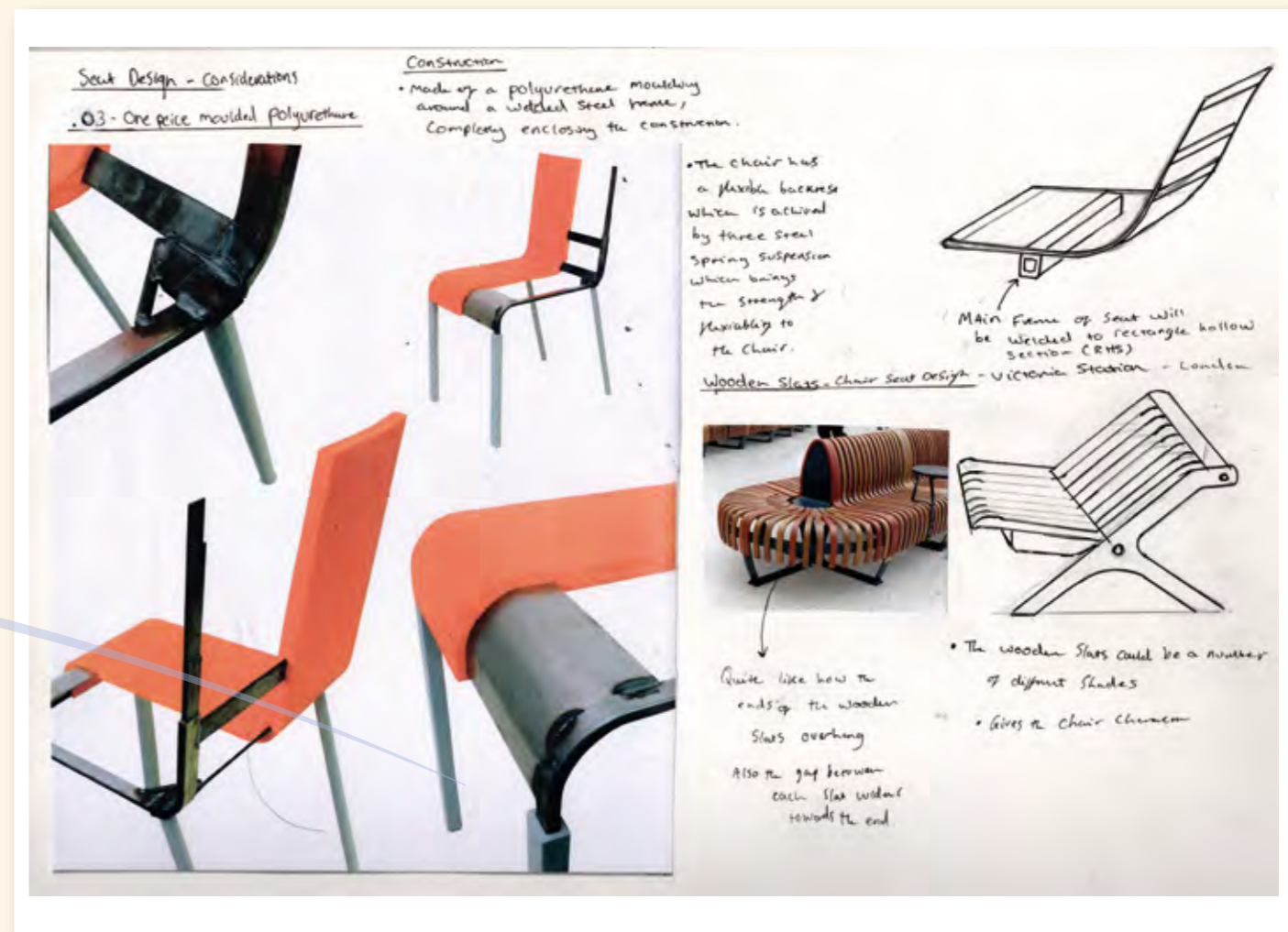
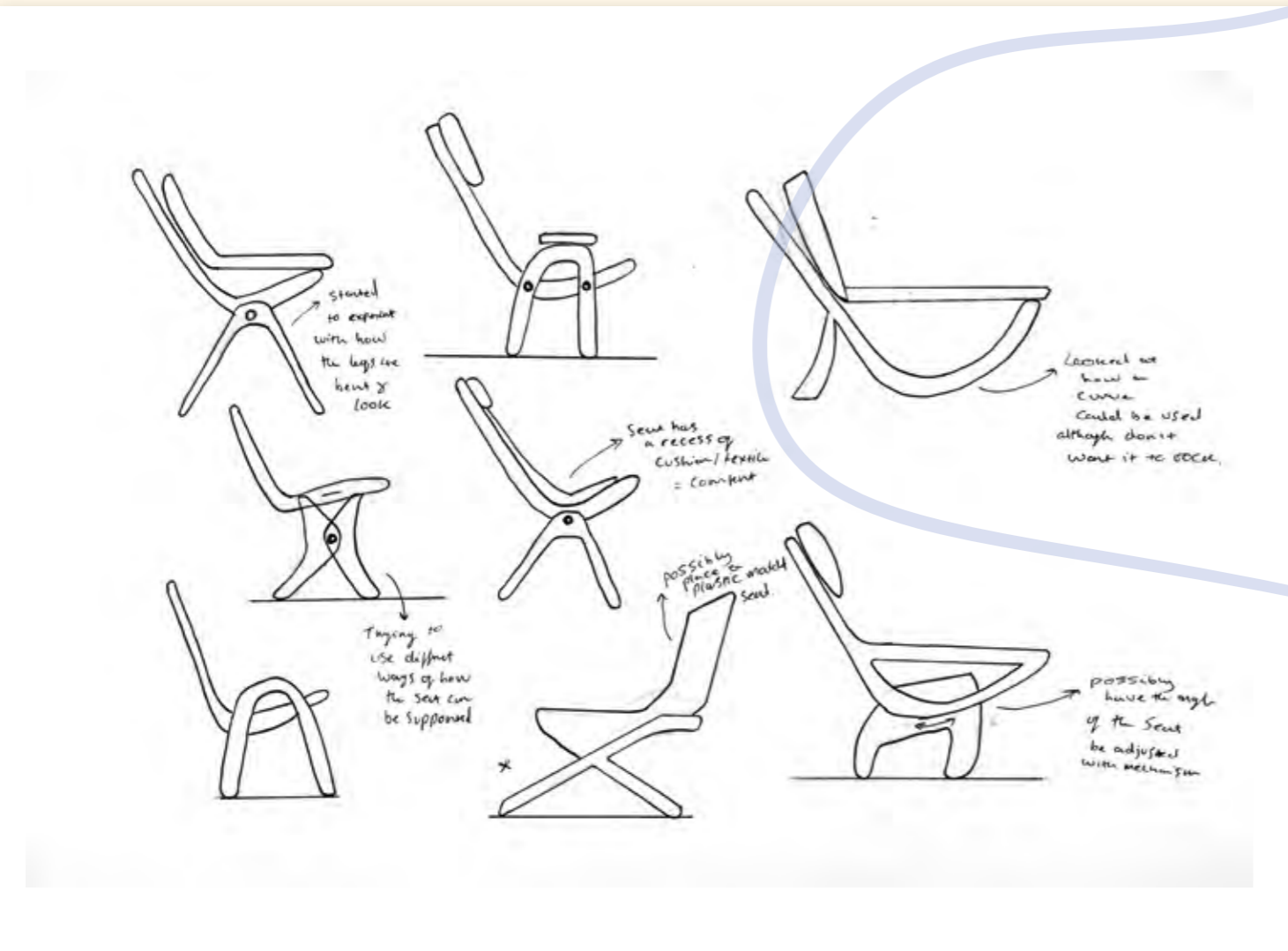
## Remit

To design a chair that is suitable for a variety of environments, including: domestic, office, bar, restaurant etc. The chair needs to retail at a price between £50 - £220 per unit.

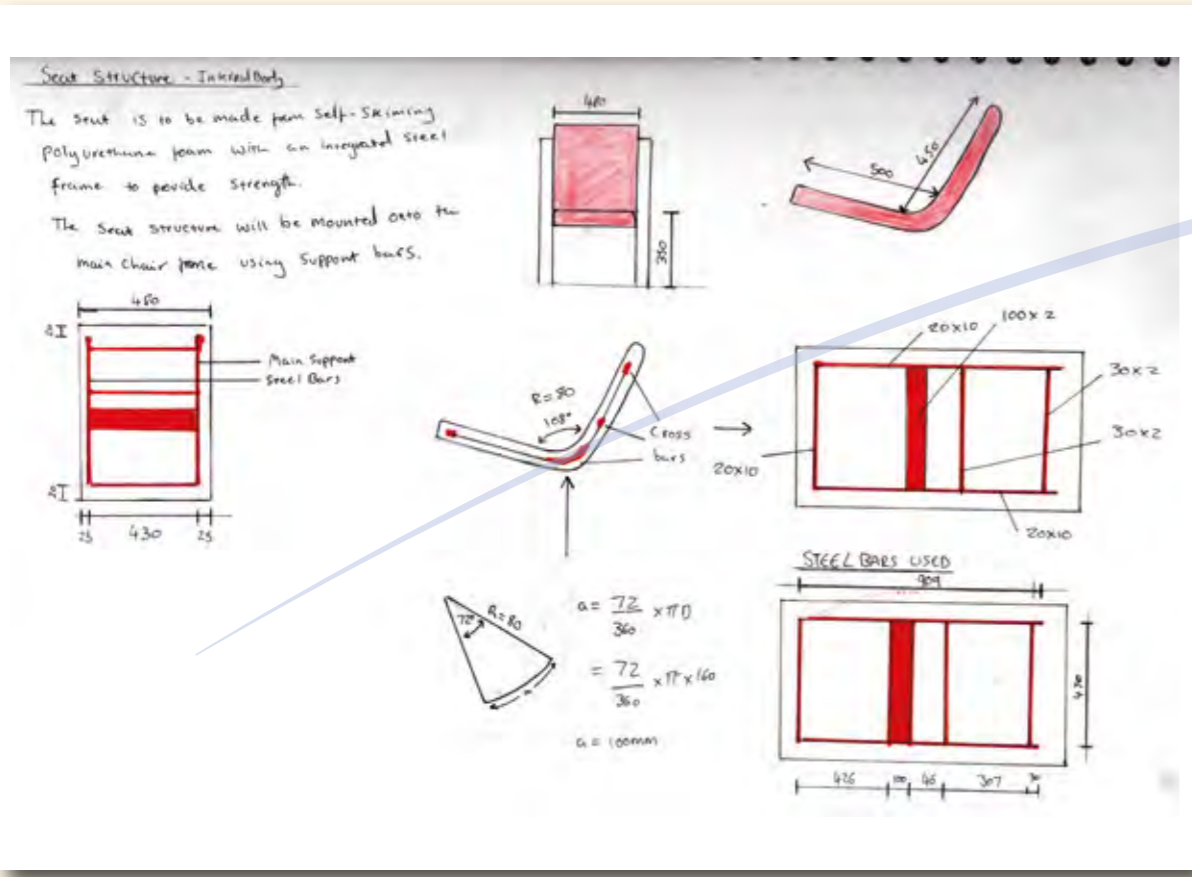
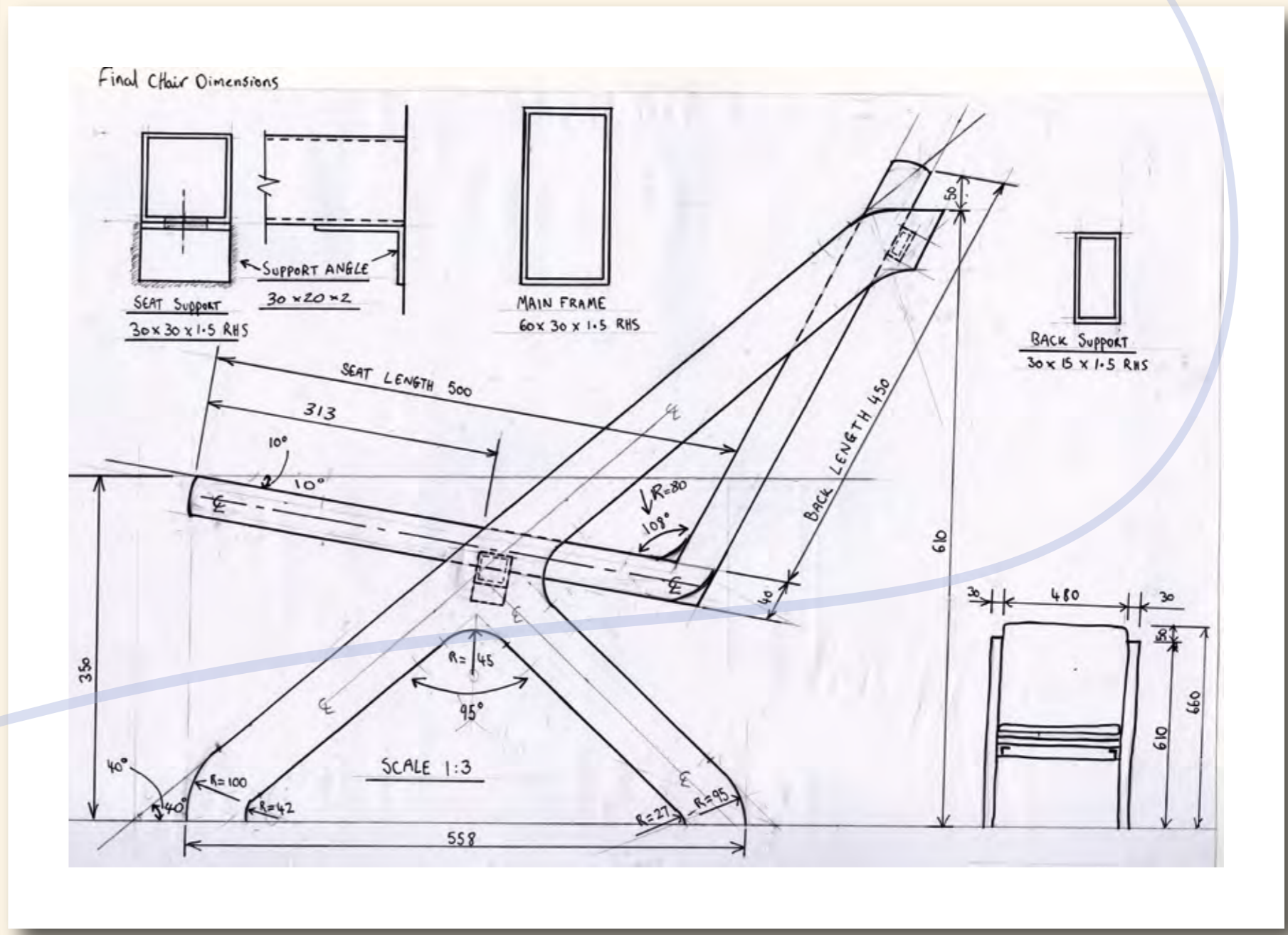
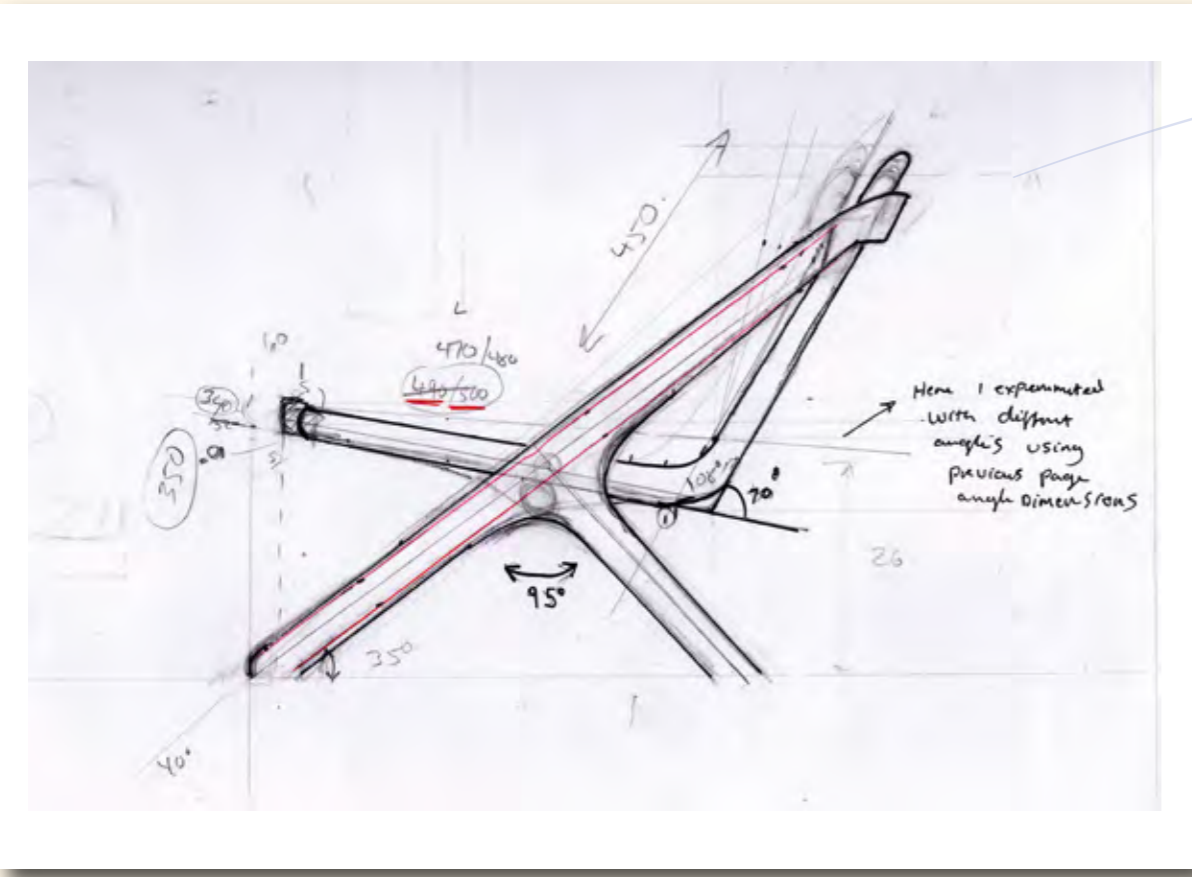
# Design Inspiration



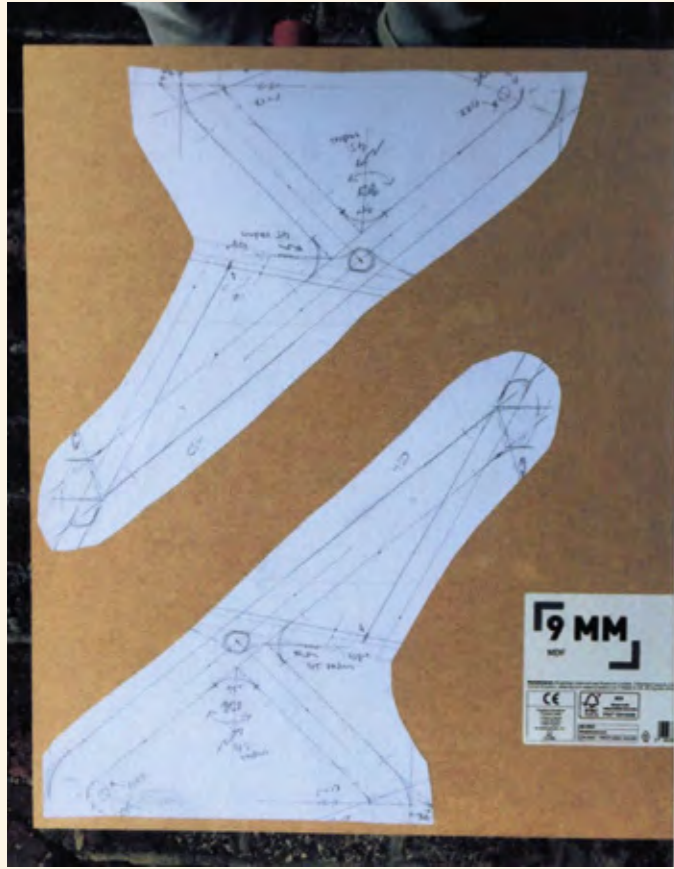
# Initial Sketches



# Design Development



# Prototyping



# Final Concept





# OneSpace

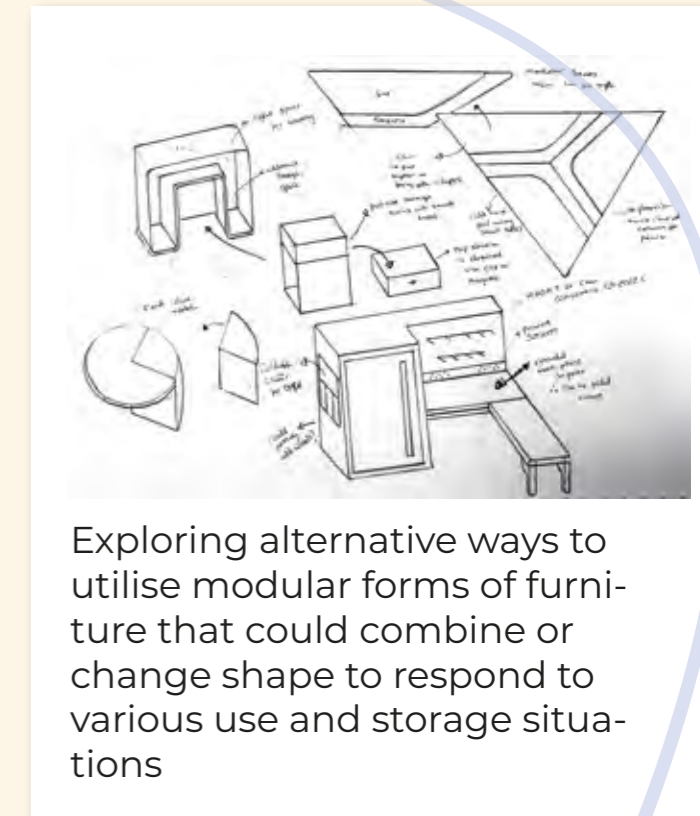
Flexible Working



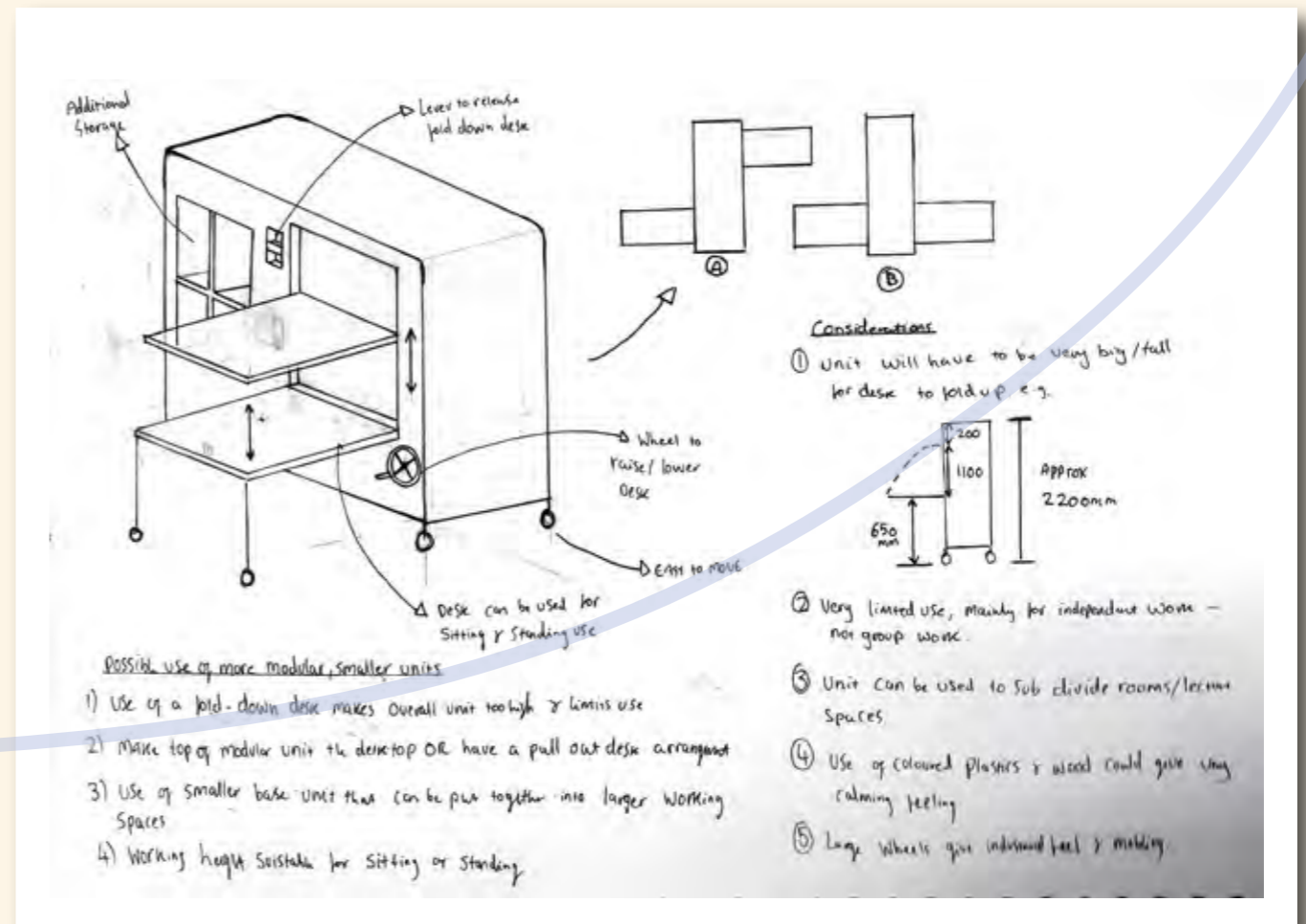
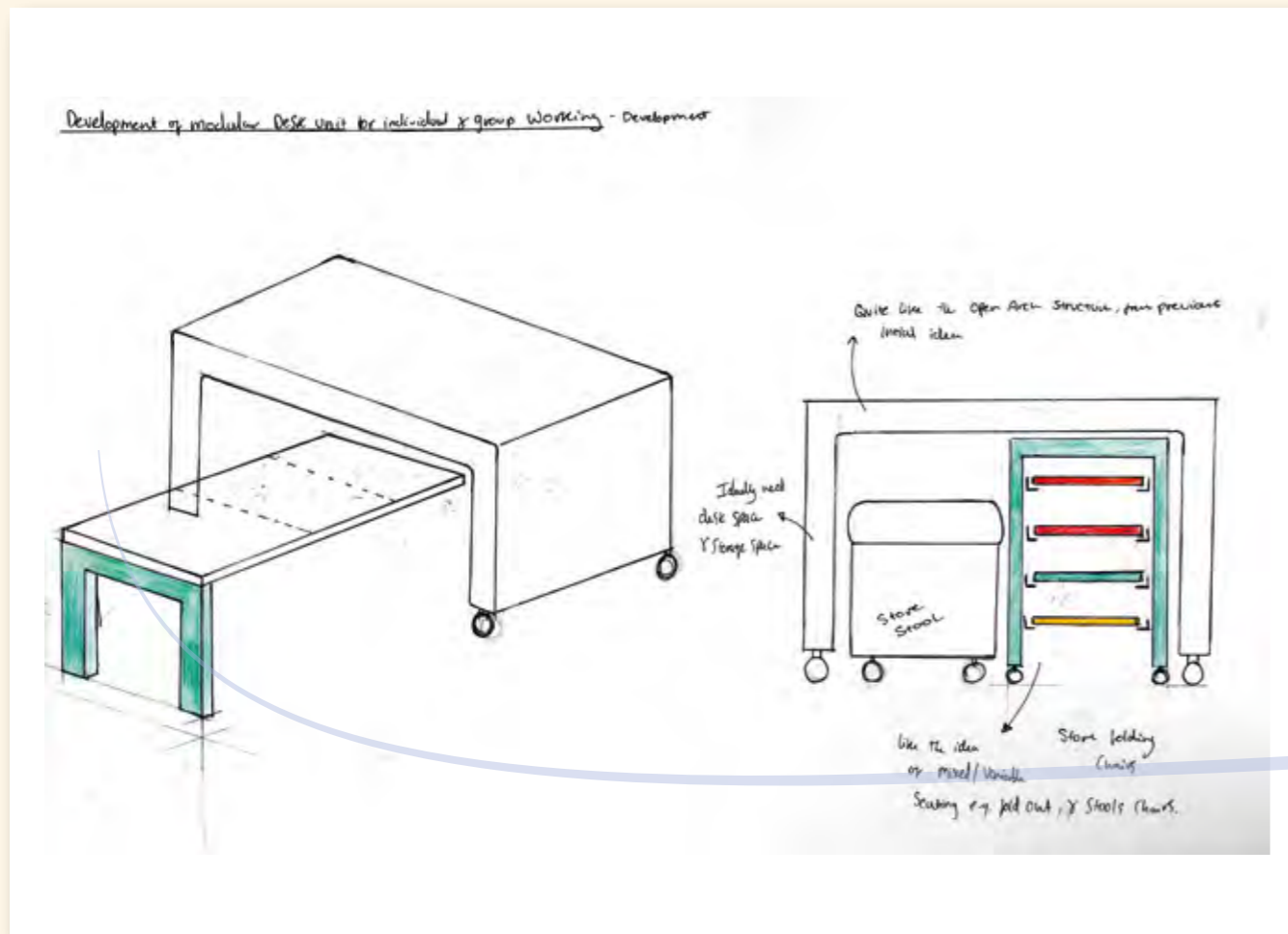
Remit

To design communal furniture or storage for FE or HE institutions, with modular or multiple functionality.

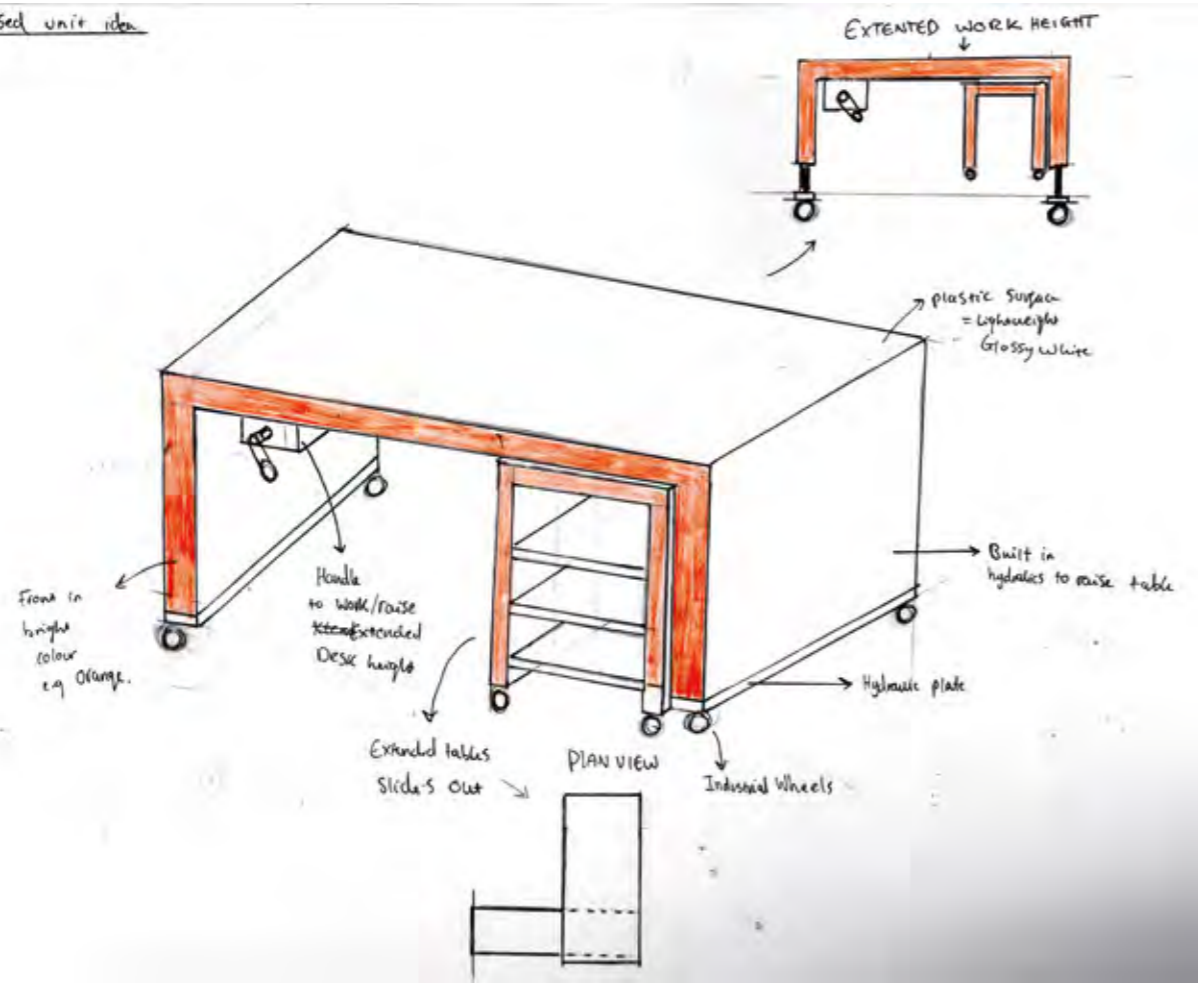
# Design Inspiration



# Design Development



Proposed unit idea



Piston / Hydraulic Lift System  
Dyna Lift System - Existing product

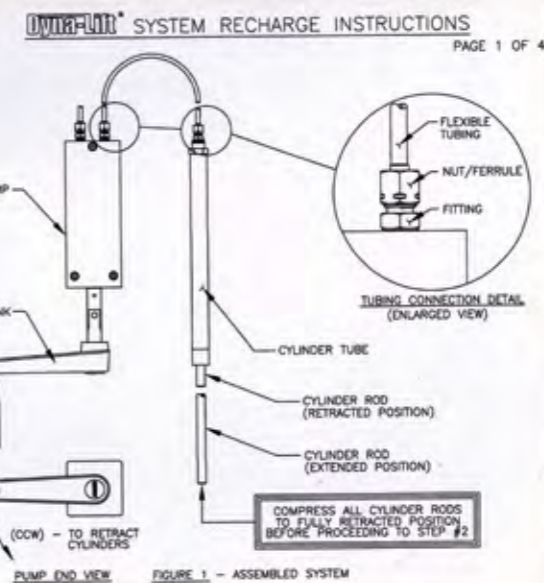
- Can be applied to most table styles...  
Standard (1,000F max.) & Medium (1,500F max.)  
Manual Hand Crank or Electric Motor-Driven models available.

This company offers a variety of height extends. In my design I will be using the internal mount mechanism.

TIA Telescoping Leg Hydraulic Lift System

To enable each desk unit to be used at either sitting or standing height, this hand operated piston system will be incorporated at each desk caster position.

How does it work?



- 1) The crank is turned and this will cause the cylinders below to retract and therefore the table will start to increase in height.
- 2) Then if the user wishes to return to normal height the crank is turned back in the opposite direction.

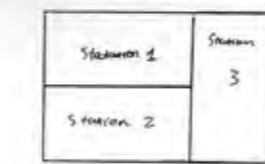
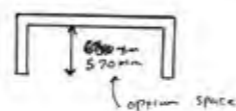
General Human Sizes for Desk Top (Anthropometry)

Desk Type	Height	Width	Depth
Child's Desk	27-32"	24-32"	20-24"
Computer Desk	27-32"	24-48"	20-30"
Lap Desk	4-6"	20-24"	12-18"
Industrial Desk	28-30"	48-72"	18-20"
Work Top Desk	28-30"	48-72"	24-30"
Secretary	28-30"	36-42"	24-28"
Wrist Rest Desk	28-30"	36-42"	18-24"
Writing Desk	28-30"	30-48"	20-30"
Writing Table	28-30"	36-42"	20-24"
Writing Table	28-30"	36-42"	20-24"

-> Need to identify the correct knee height clearance

Knee Space Clearance  
20"-26" high (510 - 660mm high)  
20" 26" wide (510 - 660mm wide)

As we know the chair height we can decide for how much knee clearance



∴ suitable desk top would be 1600 x 800

However to gather first hand information, I went around and measured other desks to see how big the desk top would be.

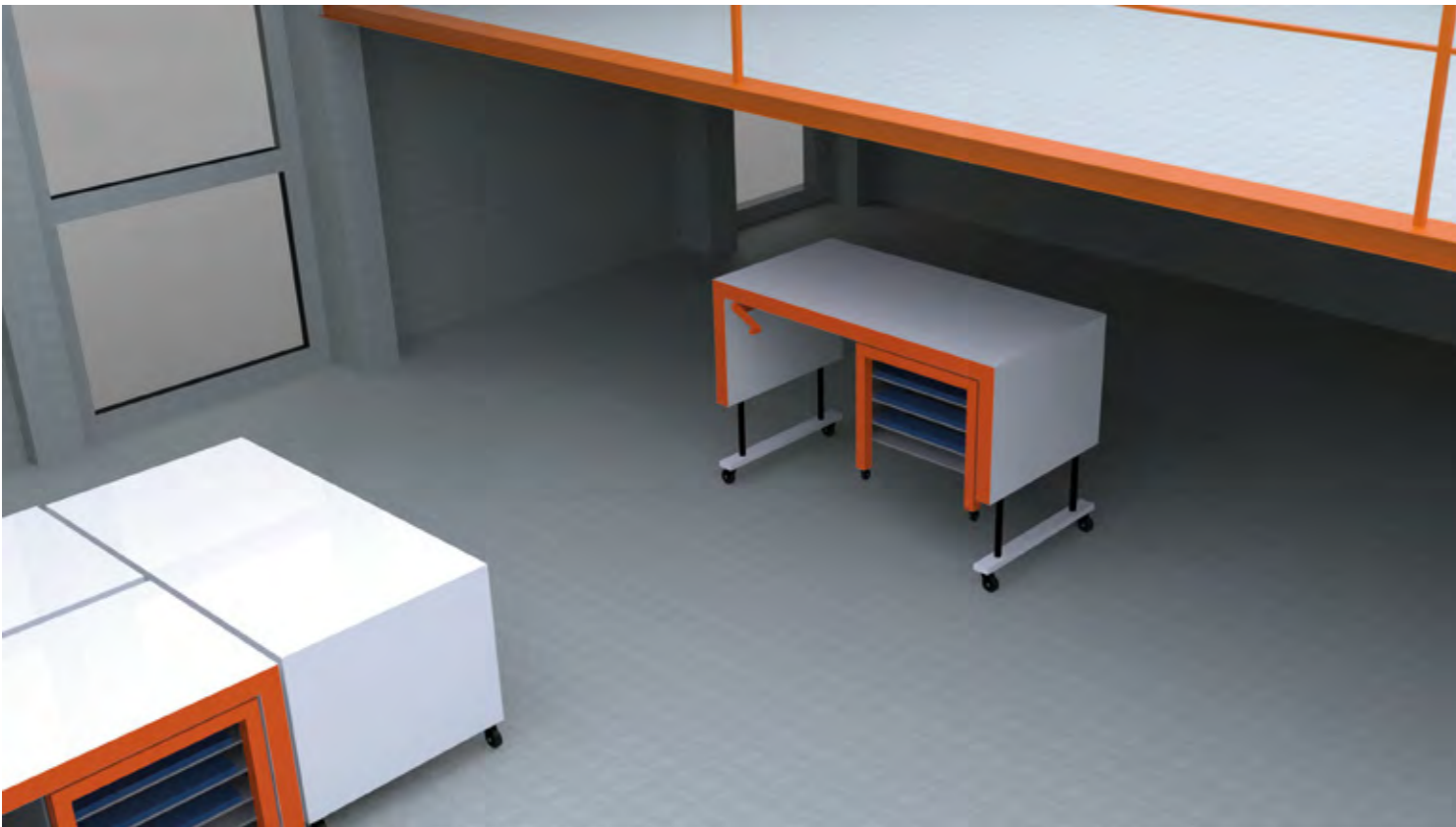
Study Desk - Working Size



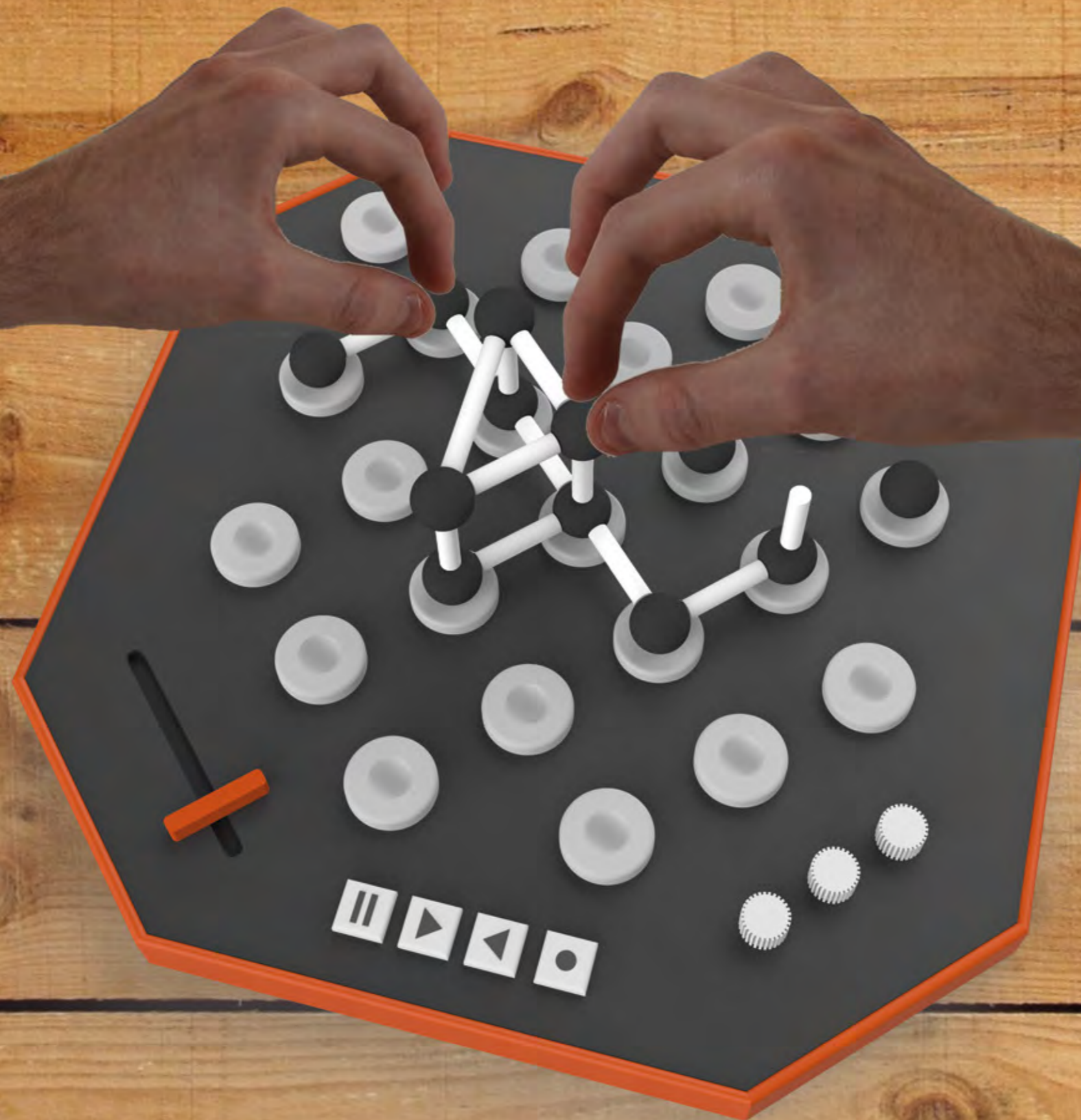
Desk Functional capabilities:

- Desk size enables individual use or combining two or more desks into group working spaces.
- Pull-out table unit creates L-shaped working space for individual use.
- Desk can be simply raised or lowered to facilitate desk use either seated or standing.
- Storage space for up to 3 folding wooden seats - for individual or communal group work.

# Final Concept



# m o l e c u l a r   m u s i c



## Remit

To design an interactive electronic music maker. This product must be aimed at non-specialist market, and provide people with no experience in music making to be able to put together a form of music quickly and easily.

# Design Inspiration



## Primary Research

I Explored a number of existing products to see how easy or difficult their interfaces were to use. This vital research would help determine aspects and elements which could be adapted to allow easy operation of the device straight away.

**PRIMARY RESEARCH - PRODUCT TESTING**

**LAUNCH PAD MKII**

The pad has a quite simple interface. The 64 pads allow the user to assign clipping regions to the pad, as well as being able to play drum tracks and control the mixer and creating impressive light shows.

The pad also has RGB LEDs which can be switched the colour of your clips. The pad works well with Ableton Live, mainly designed to work with that software.

The launchpad itself is very portable & lightweight, meaning most/majority of users will be able to move it around. Due to its portable square shape, it's very easy to pack away or transport in a bag.

When using the pad, you can assign the LEDs to each key. Each key/LED is added into a sequence which can make exciting visual light shows in various different patterns.

If a user doesn't own an expensive software - like Ableton, this is a free alternative.

Also to plug the pad into portable devices of which based on the current Navigation Arcade.

I also think Arcade is a good way to learn how to make simple tracks using pre loaded clips. Then simply of each column the user can play with sound/break to make a track.

**VISUAL LIGHT SHOWS**

**POCKET OPERATOR PO 12 RHYTHM - 16 STEP PATTERN SEQUENCER SYNTHESIZER**

The user also has the option to snap off the top section to make the design more compact.

I think the addition of the strong enclosure of the engineer makes a fun visual as the objective is to have the engineer operating the machine which can only be completed by creating and finishing a rhythm.

The PO 12 has a unique and lightweight design which will slot into any pocket. It offers an easy introduction into electronic music in a fun way.

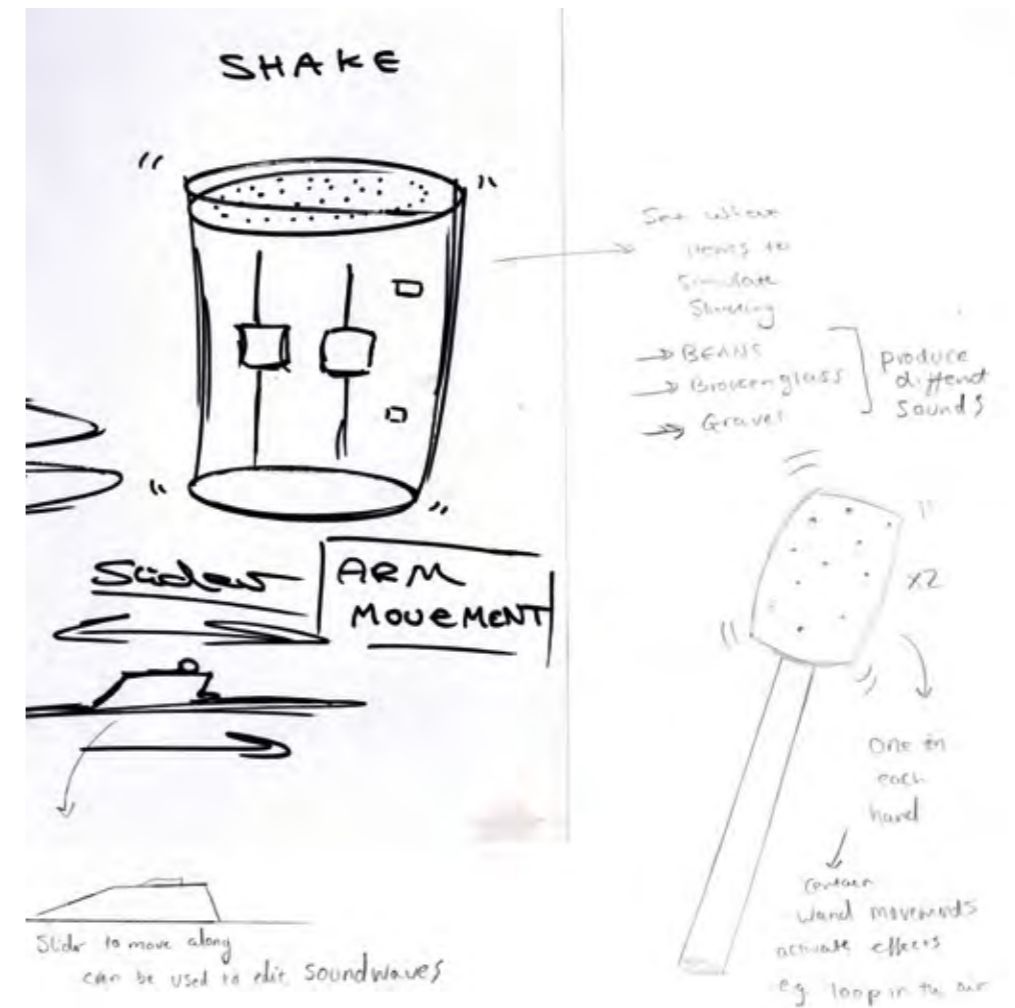
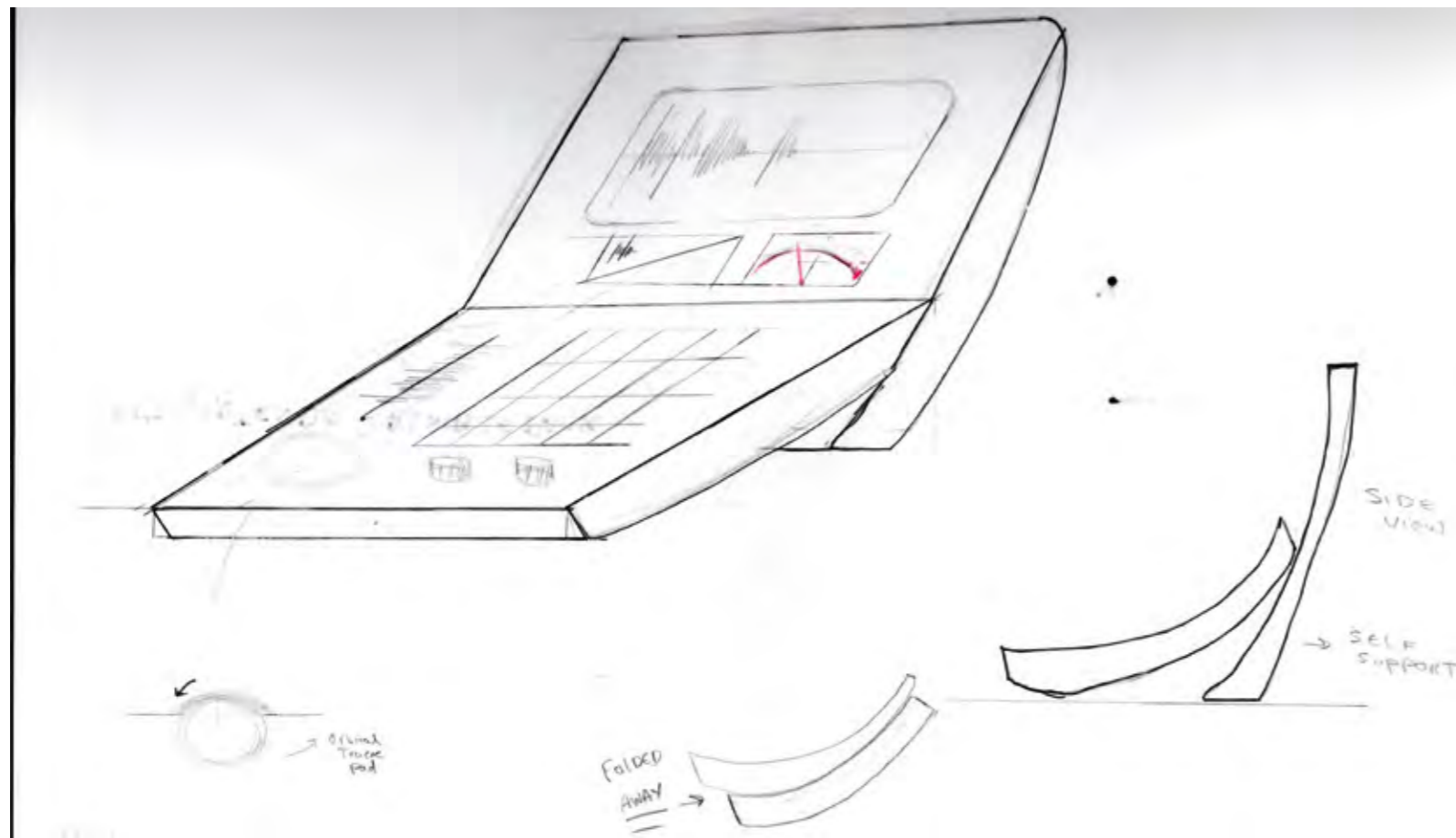
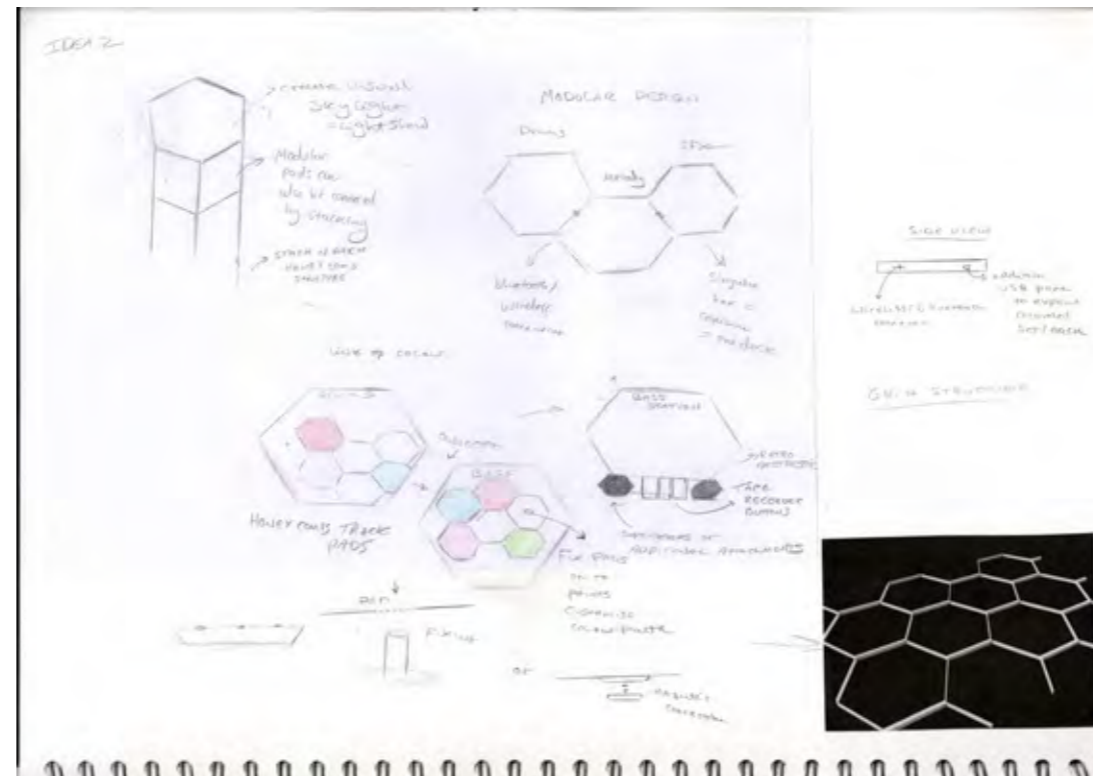
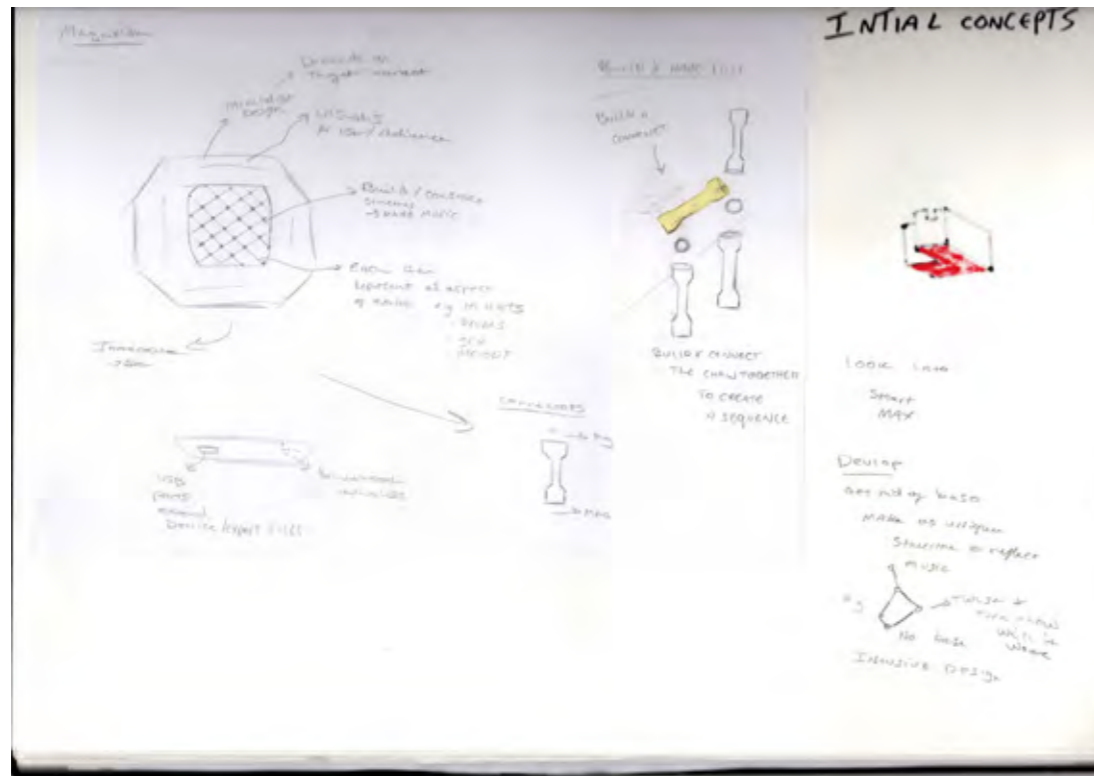
The product is designed on a single circuit board & therefore only requires batteries to power.

The device itself was difficult at first to learn, due to the amount of button combos needed to work it, however once learnt it was very easy to create different patterns using the various sounds. I found it quite fun.

I also discovered another feature of the device. Using the patterns you have created, they can be used in the Alarm Clock feature. So as well as a music maker it is also an alarm clock.

The maker also has a useful feature of a folding stand, so it doesn't always have to be flat surface.

# Initial Sketches



# Design Development

Prototype 2

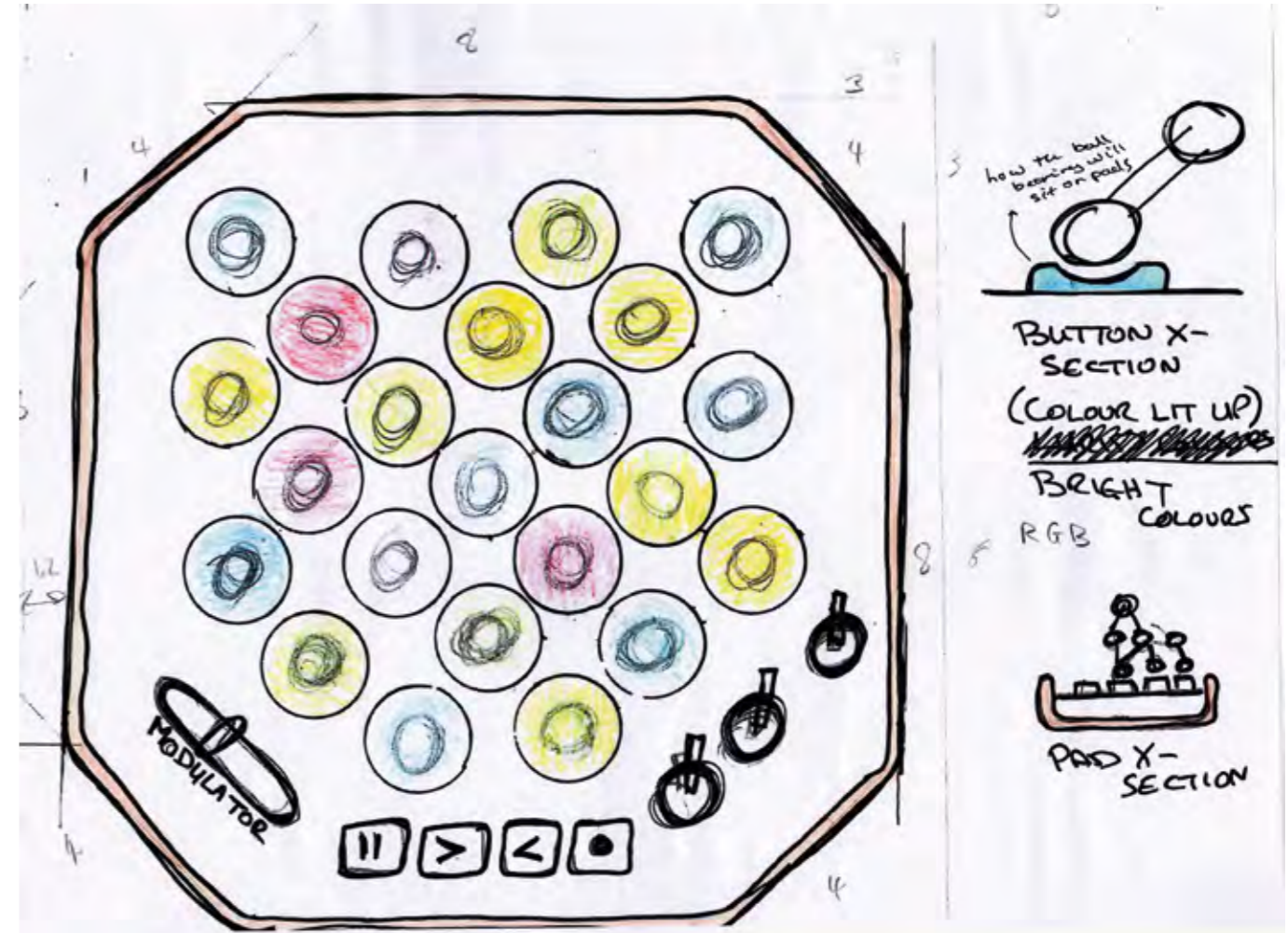
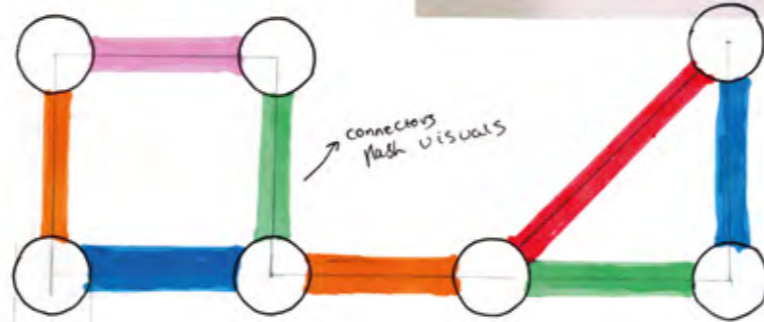


Each connector (cocktail stick) when being used with music could change a variety of colours or different sequences eg pulsing colours, fading ect.



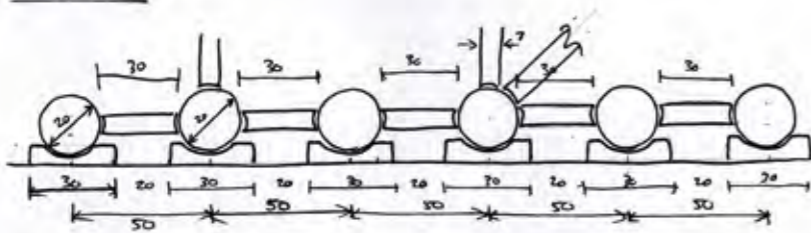
I was able to create a small dirty model of my concept without the back. This freedom allowed myself to create an imaginative sculptural piece which can be different each use.

For instance while playing the music, the structure may light up with coloured visuals or change when parts of the structure are twisted or pushed.

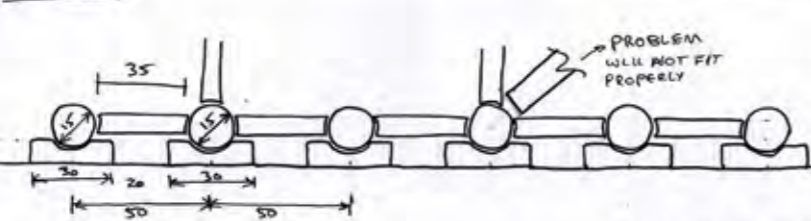


Working out dimension for ball bearing & connectors

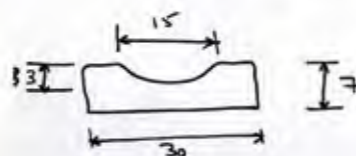
OPTION 1



OPTION 2



CROSS-SECTION OF PAD



Space for diagonal lines?

Sphere  $\phi$  20mm  
 Circumference =  $\pi \times D = \pi \times 20 = 62.8318$   
 $\therefore \frac{1}{4}$  circumference =  $15.7079$   
 $= 15.71 - 7 = 8.71$   
 will fit diagonal line.  $\checkmark$

Sphere  $\phi$  15mm

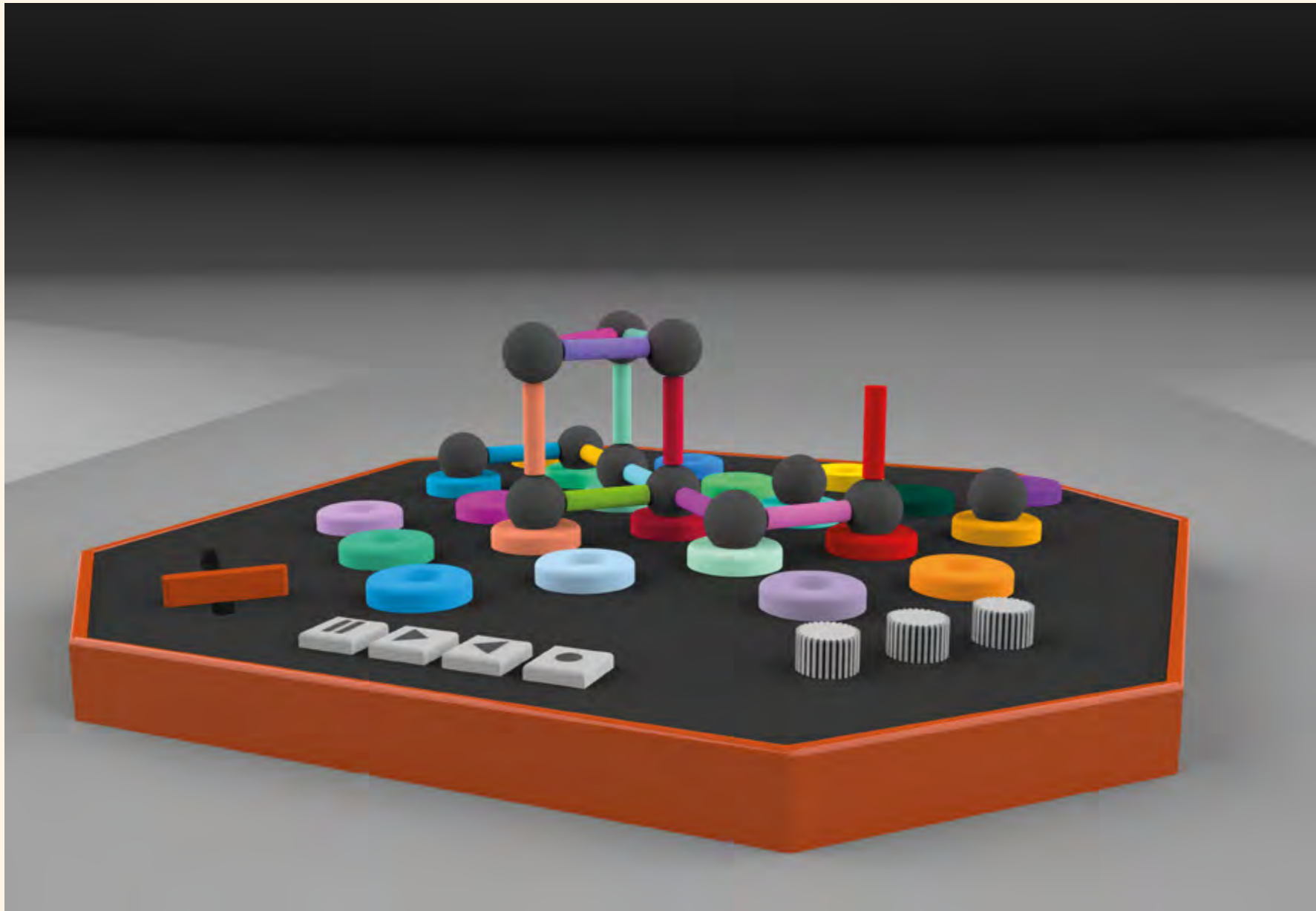
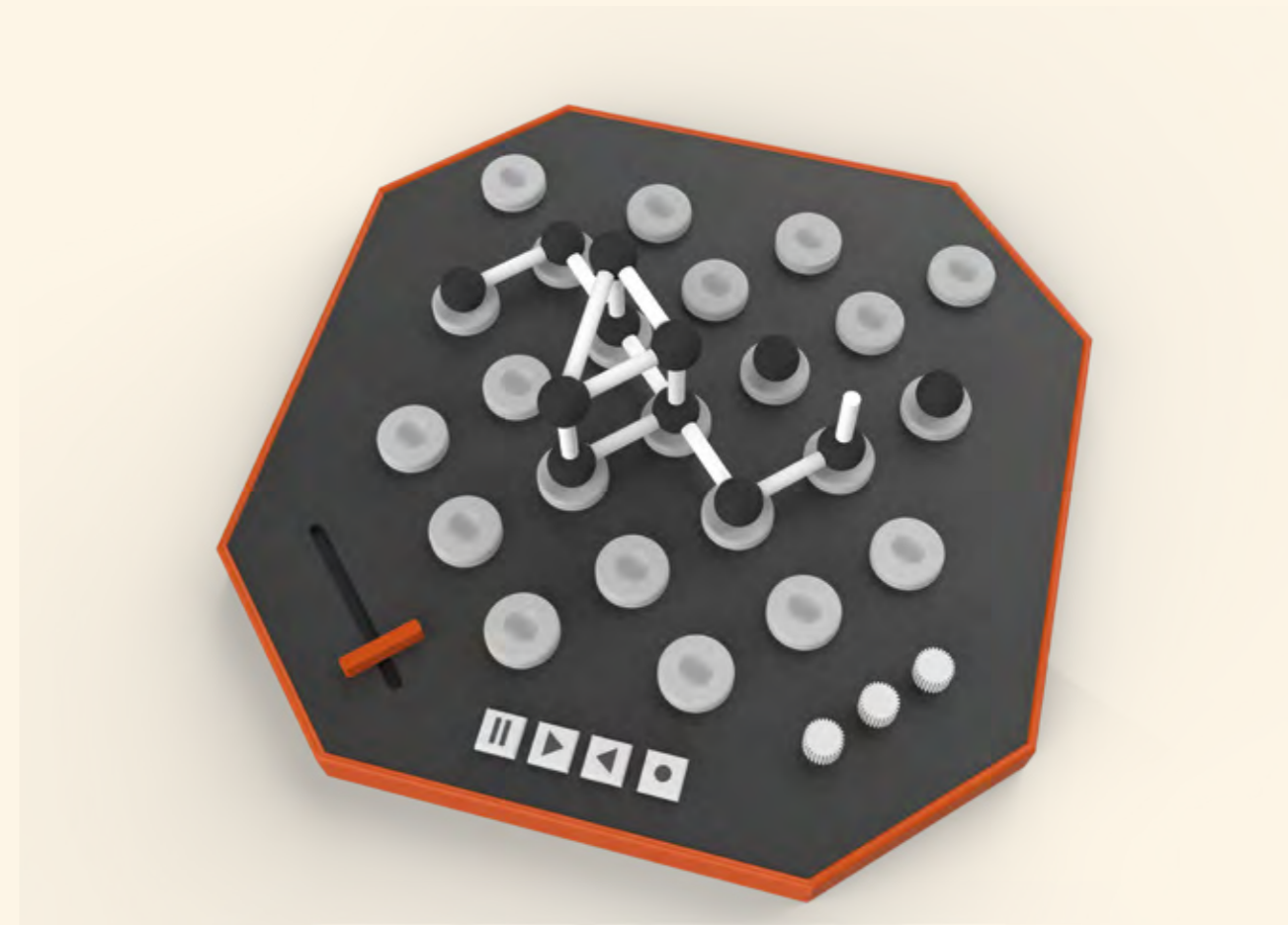
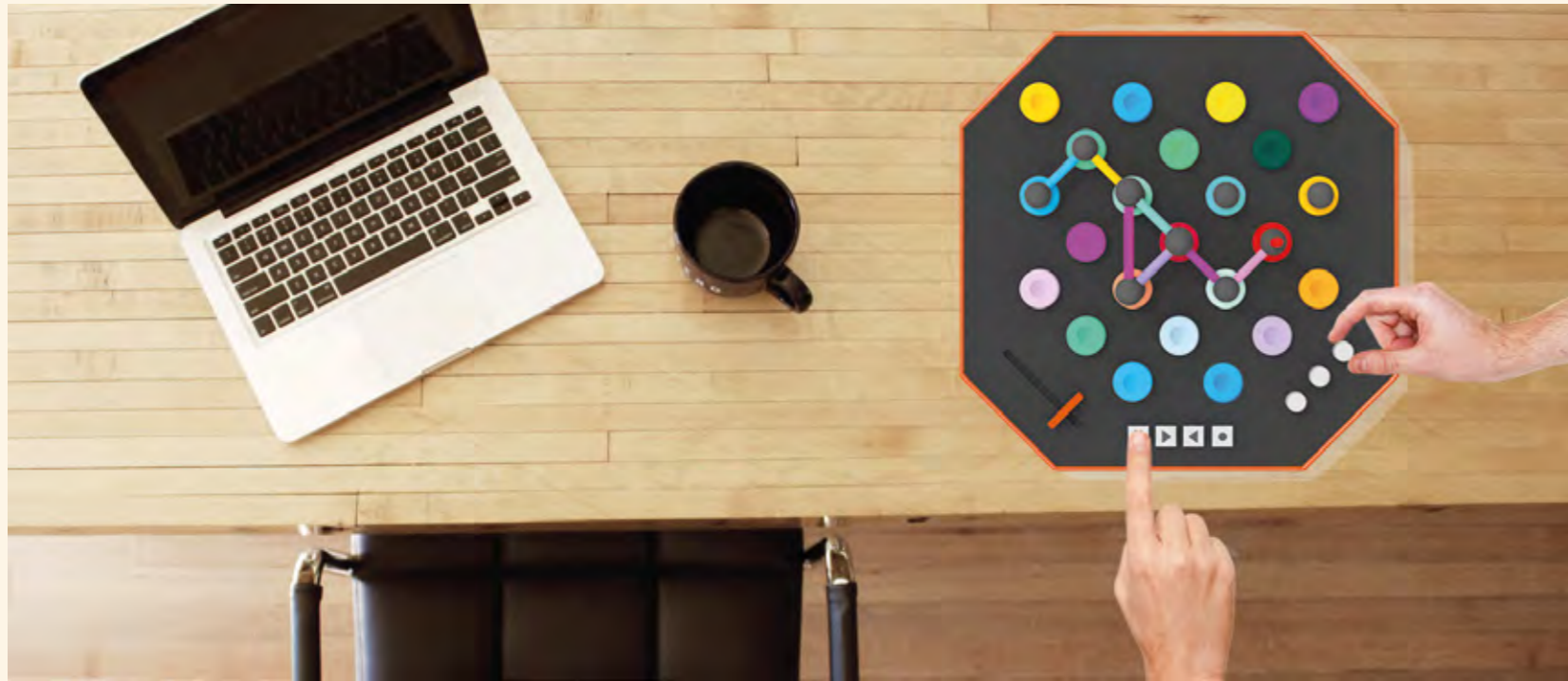
Circumference =  $\pi \times D = \pi \times 15 = 47.1239$   
 $\therefore \frac{1}{4}$  circumference =  $11.7809$   
 $? = 11.78 - 7 = 4.78$   
 $= 4.78$ mm - diagonal won't fit

$\therefore$  overall option 1 will work.

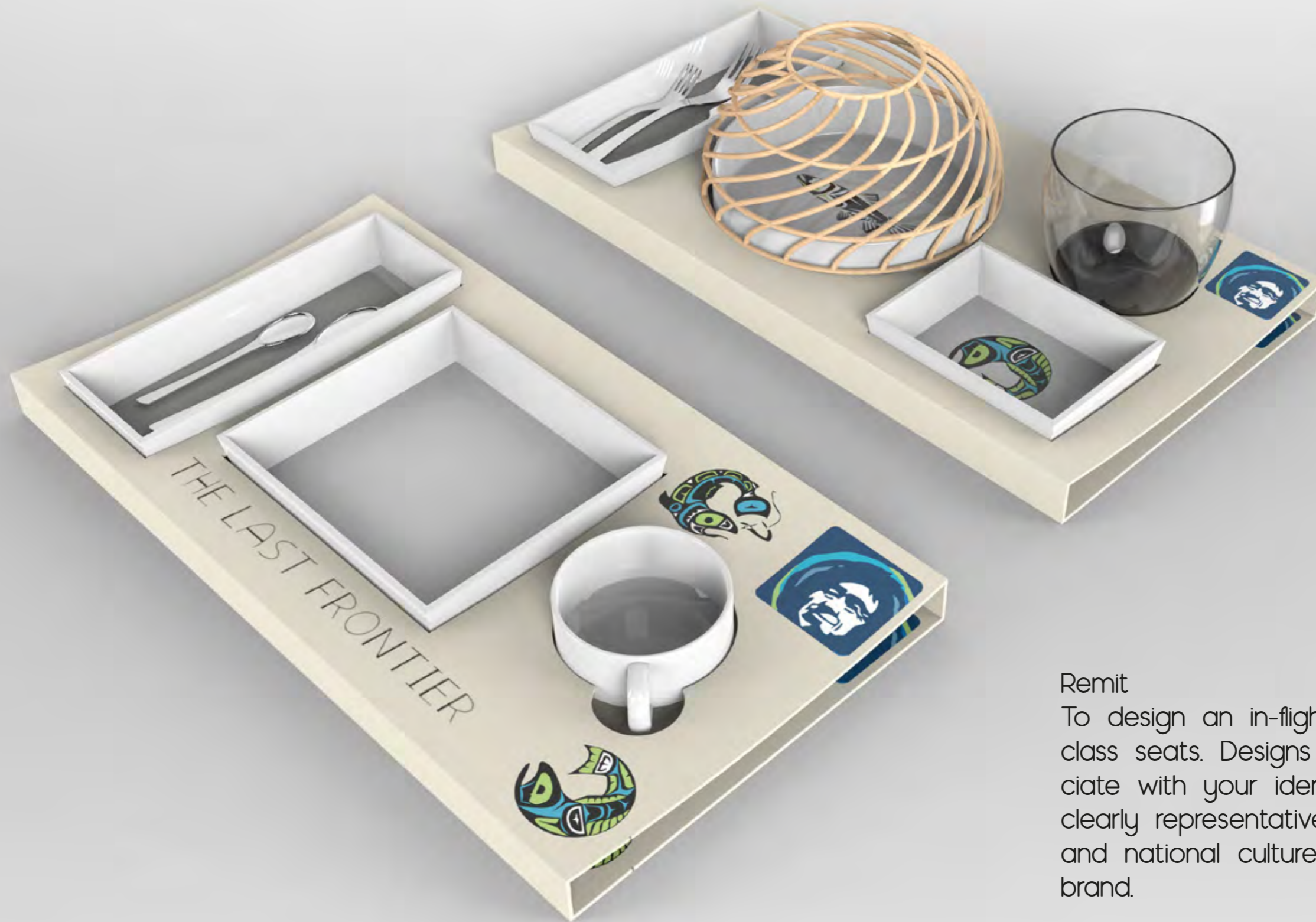
The proposed music maker design idea was to combine the manipulation of the musical sounds being generated within the base unit, with the ability to create 3D forms that would further affect, or mix, the sounds: different shapes will create unique sound responses.



# Final Concept



# Alaska Airlines



Remit

To design an in-flight dinner tray for first class seats. Designs must be visually associate with your identified airline and be clearly representative of both the company and national culture that is central to the brand.

# Research and development



## Brand identity

The airline's identity has a striking and distinctive design, which is easily recognisable.



## The issue

The current presentation of food on-board wasn't exactly representing their brand and it often created big piles of rubbish on the user's small table. Therefore a solution appeared in to improve this experience.

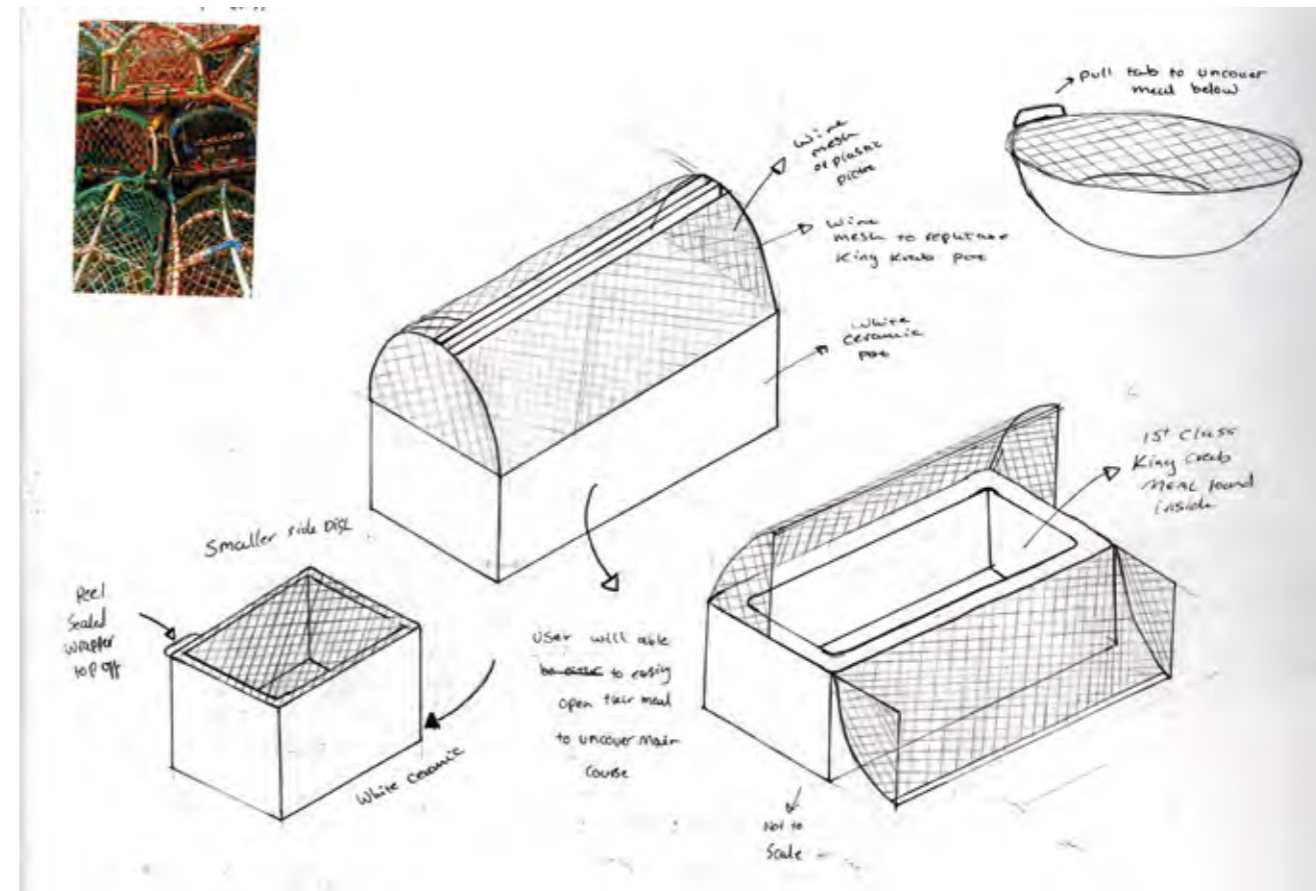
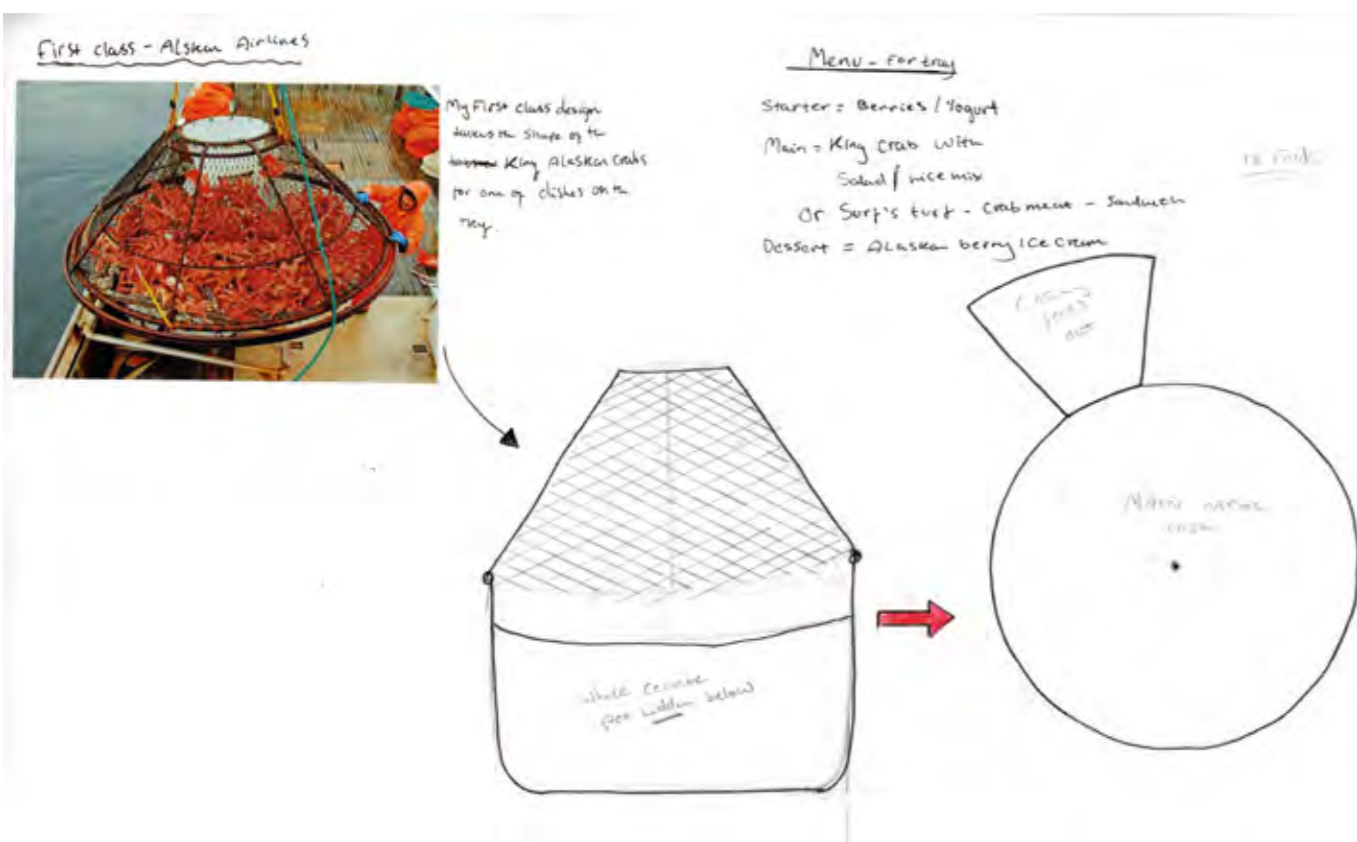


## Identified solution

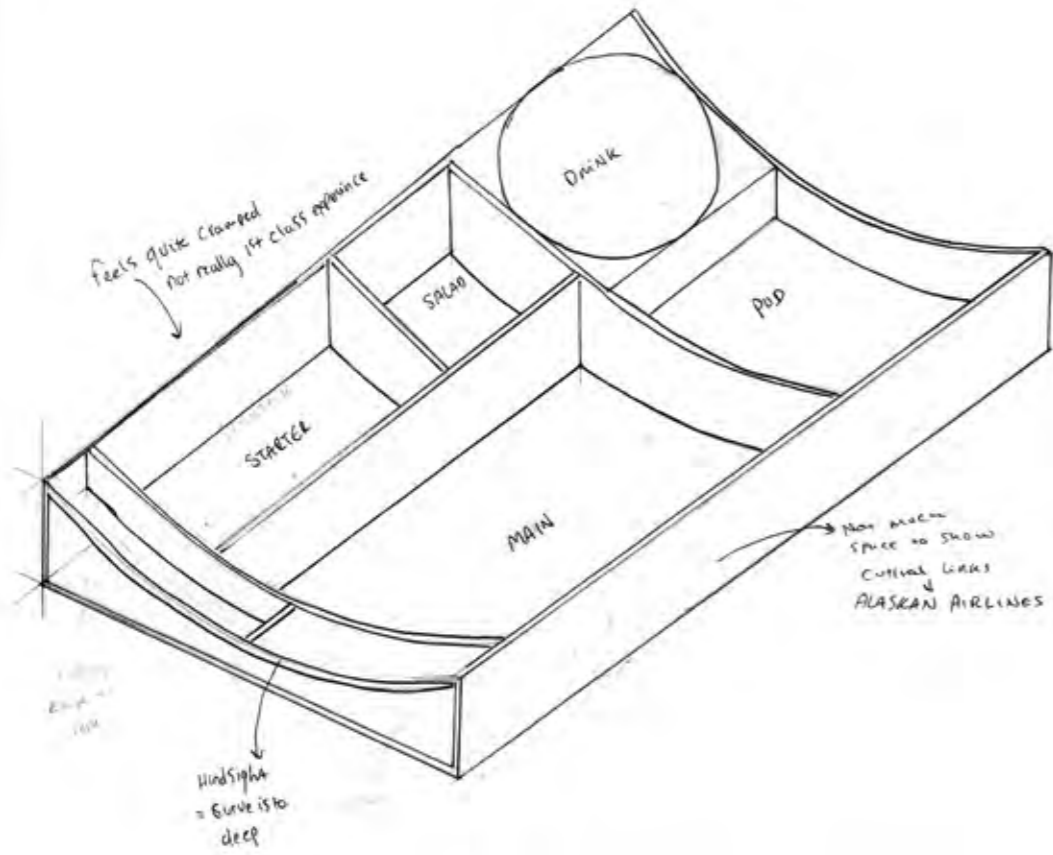
There is an aspect in Alaska Air-line to include which is their past heritage which would remind customers in honouring the cultures in Alaska. It may also include the introduction traditional Alaskan food being added to this proposed experience.



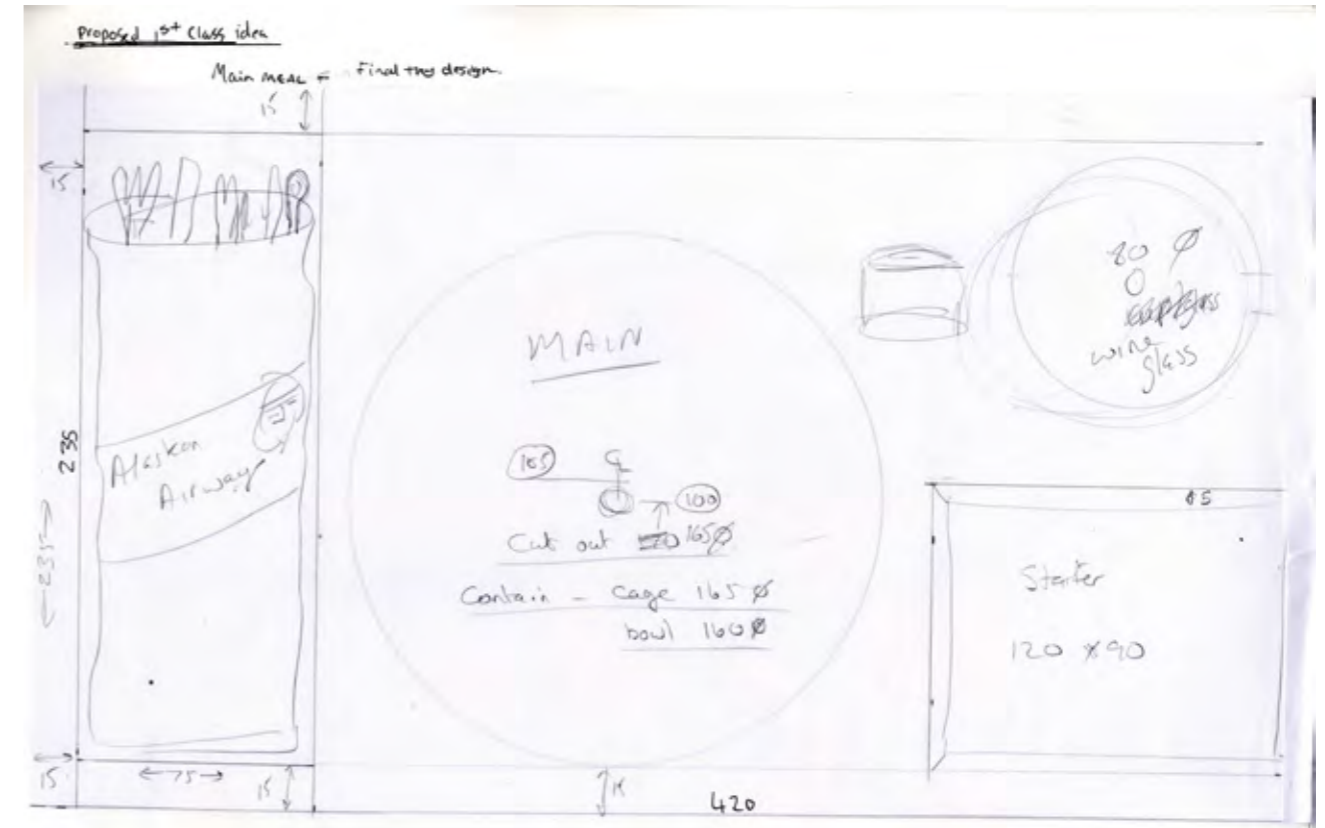
# Design Development



The research I had identified showed that a popular Alaskan cuisine was Alaskan king crab. These crabs are commonly caught in large lobster pots. I therefore decided to adapt these pots to be included within my 1st class tray design.



Through numerous ideation and iteration, a first class food tray has been developed to involve Alaskan culture and heritage to remind customers of the companies true roots.



However upon finalising the final concept, it became clear that the tray needed more association with the brand of the airline. I therefore decided to include a number of historical decals to the tray design which will in the same colour way as the brand.



# Final Concept

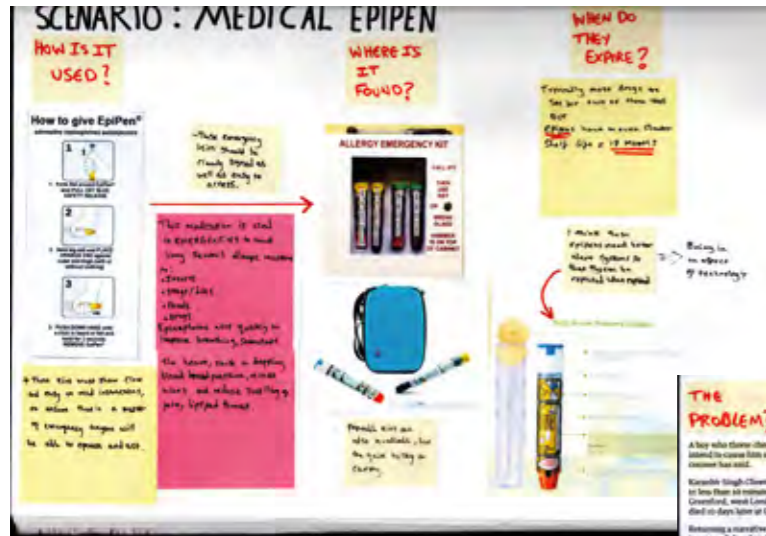


# Allee-Save Response Kit



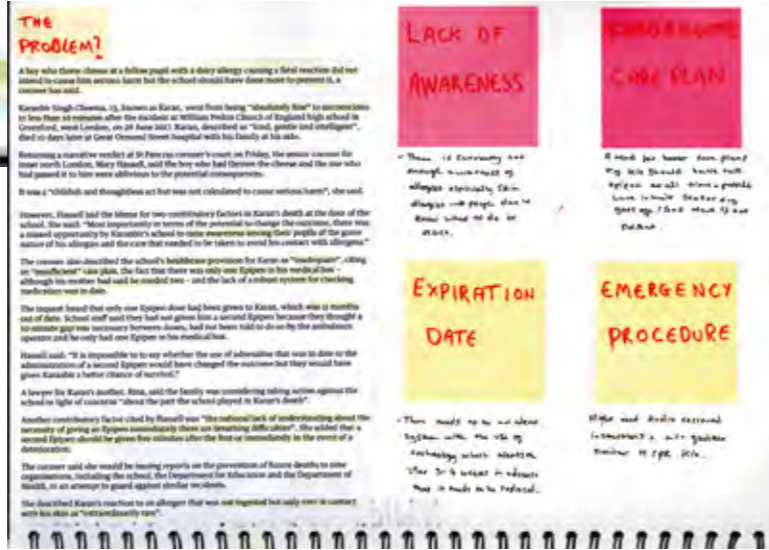
Remit  
To develop a product that utilises technology within a chosen scenario.

# Research



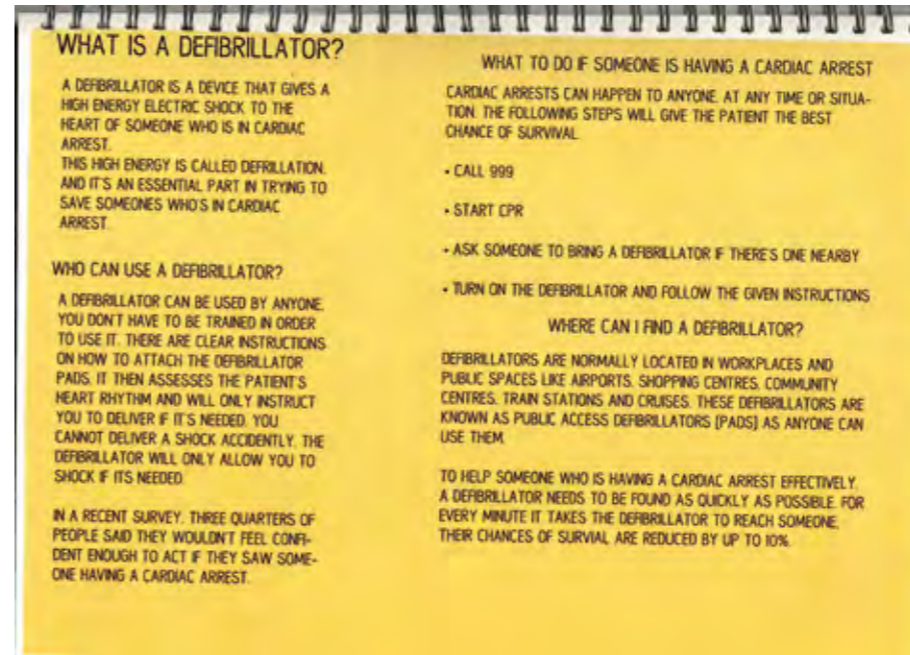
Identifying key issues

- Emergency procedure isn't properly followed which has resulted in countless deaths.
- There is a lack of awareness, many people panic and lose concentration on the matter.

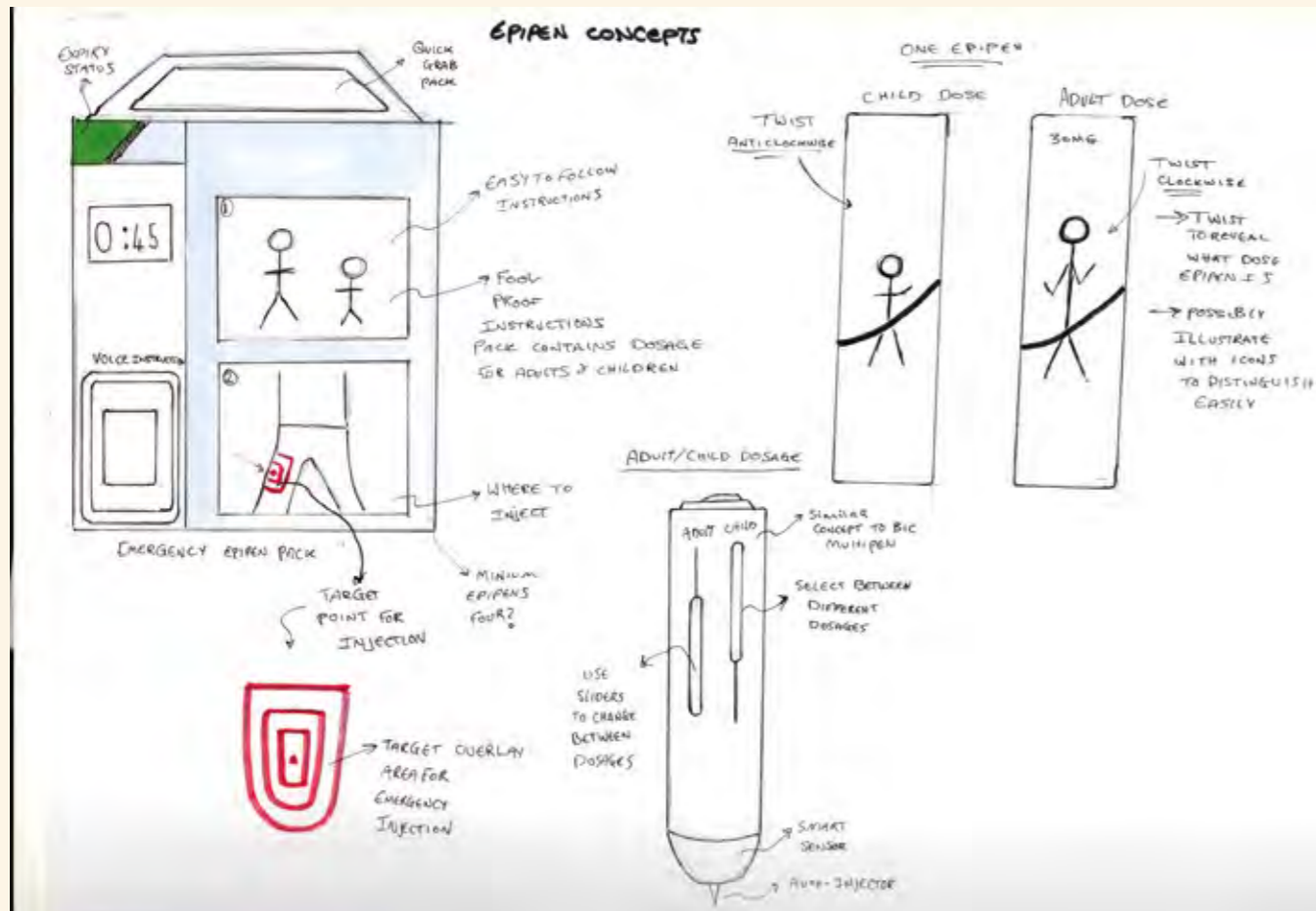


- There is a need for better structured care plans e.g. all kits should contain two epipens at all times.

- There should be an alert system that alerts administrators that the epipen medicine is about to expire.



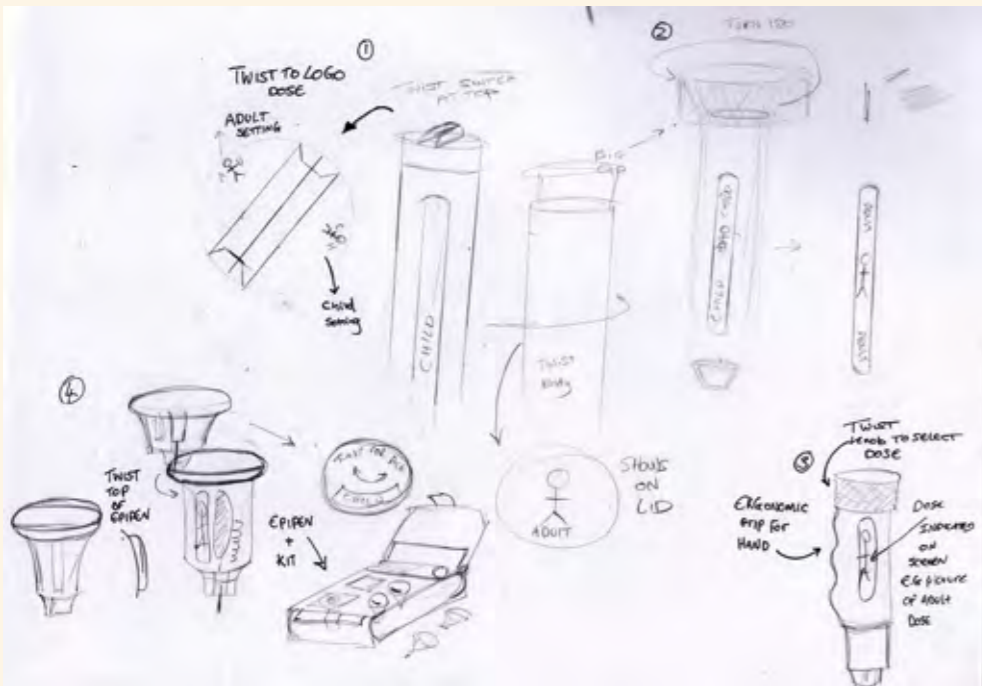
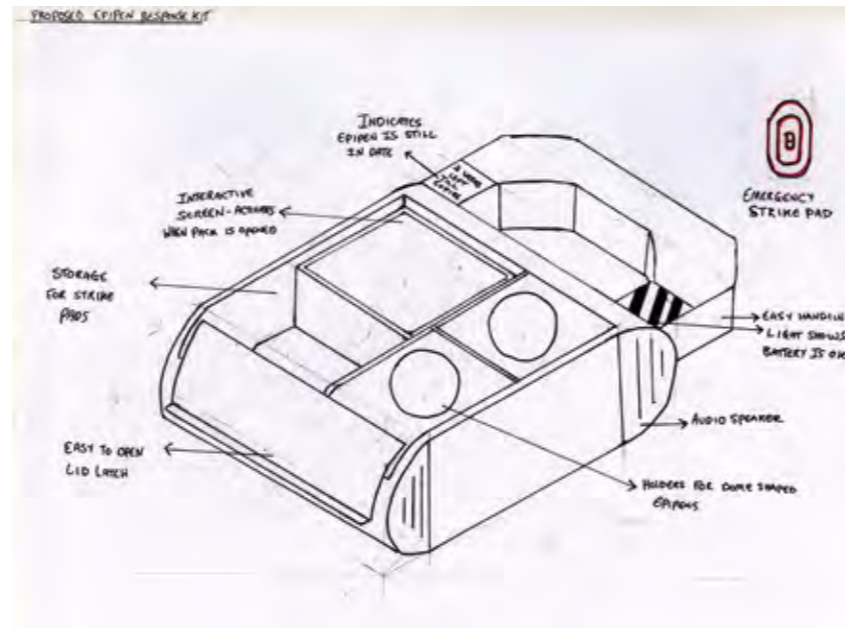
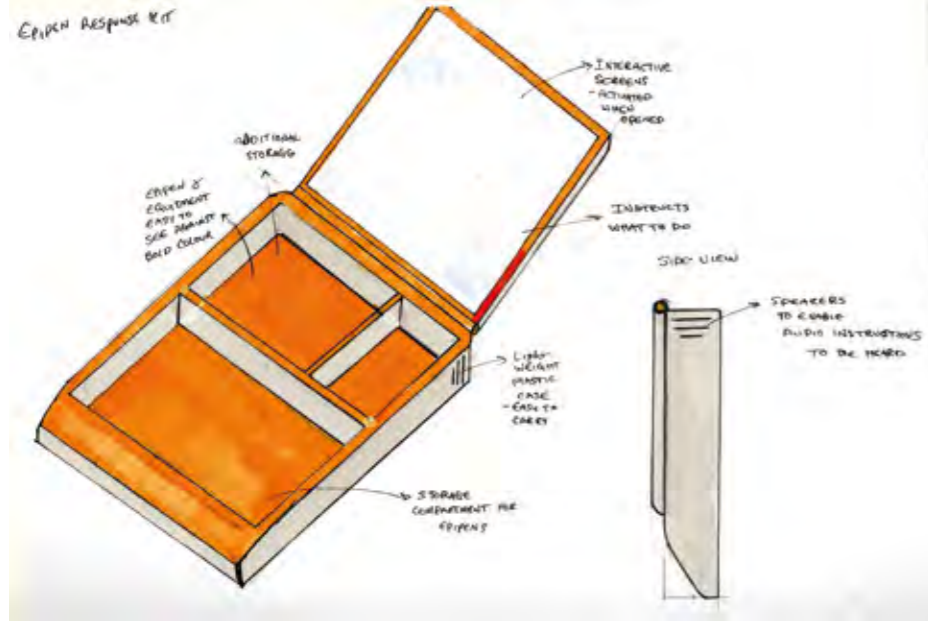
The research uncovered has identified a possible solution to provide clear and simple instructions when using an epipen device. This can be achieved by creating a rapid response kit that will instruct on what to do in an emergency.



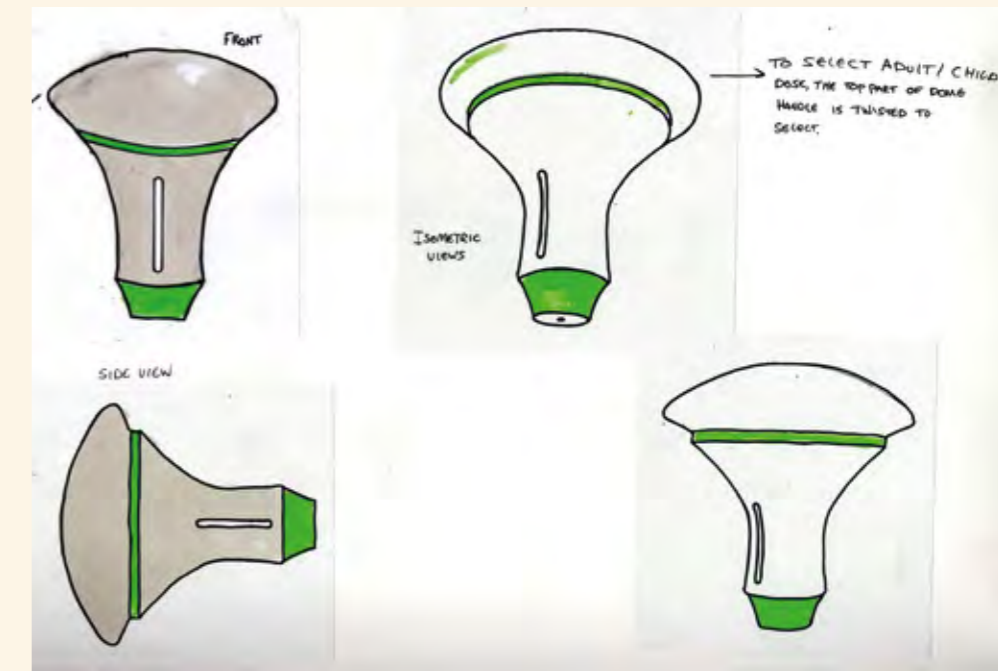
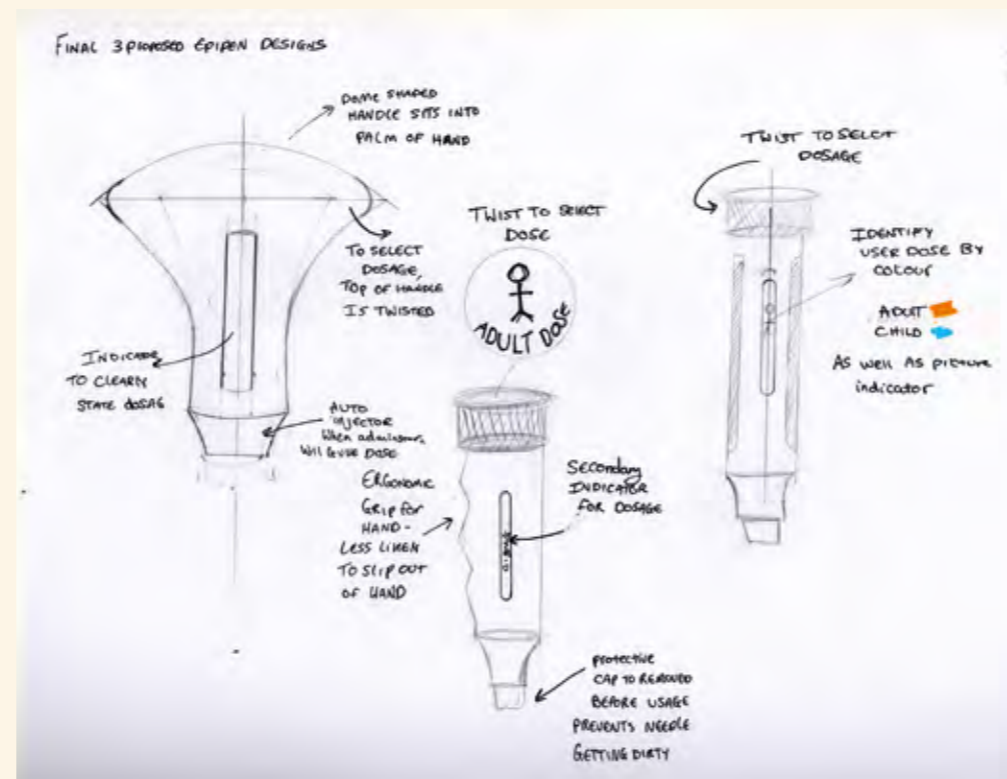
Initial research prompted an epipen response kit, which would use clear audio and visual instructions to the user. The kit also provides strike pads, these can be placed on a patient's thigh and used as a target to hit using the epipen.

The allergy pen design also proposed a twisting mechanism which would allow the user to select an adult or child dose.

# Design Development



Experimented with various different ways of how the allergy pen's mechanism could possibly work to select a adult or child dose without error.



The proposed concept above works by placing the device within the palm of the hand, this gives a good ergonomic grip around the handle when administering a dose. This will provide stability when being used and will avoid causing lacerations to the thigh which are characteristic of traditional epipens.



# Epipen Development Prototypes

## 65mm Original Concept Prototype

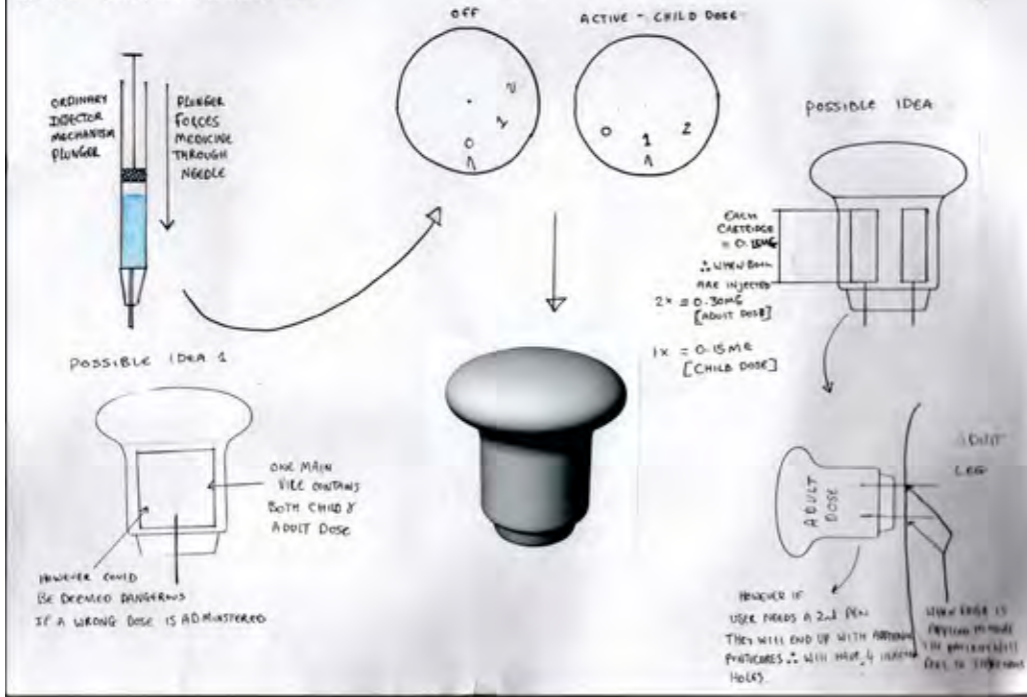


After further development of my design, the handle diameter was reduced to 65mm. This handle was much more comfortable to hold and provided better control while in the palm. Other developments included the main width increasing, this was to allow room for the internal mechanism which didn't fit in the previous narrow profile. Also the surface area which comes into contact with the skin has to be increased to increase stability as well as better hand control. This reduces the ultimate risk of the pen slipping and causing lacerations to the user.

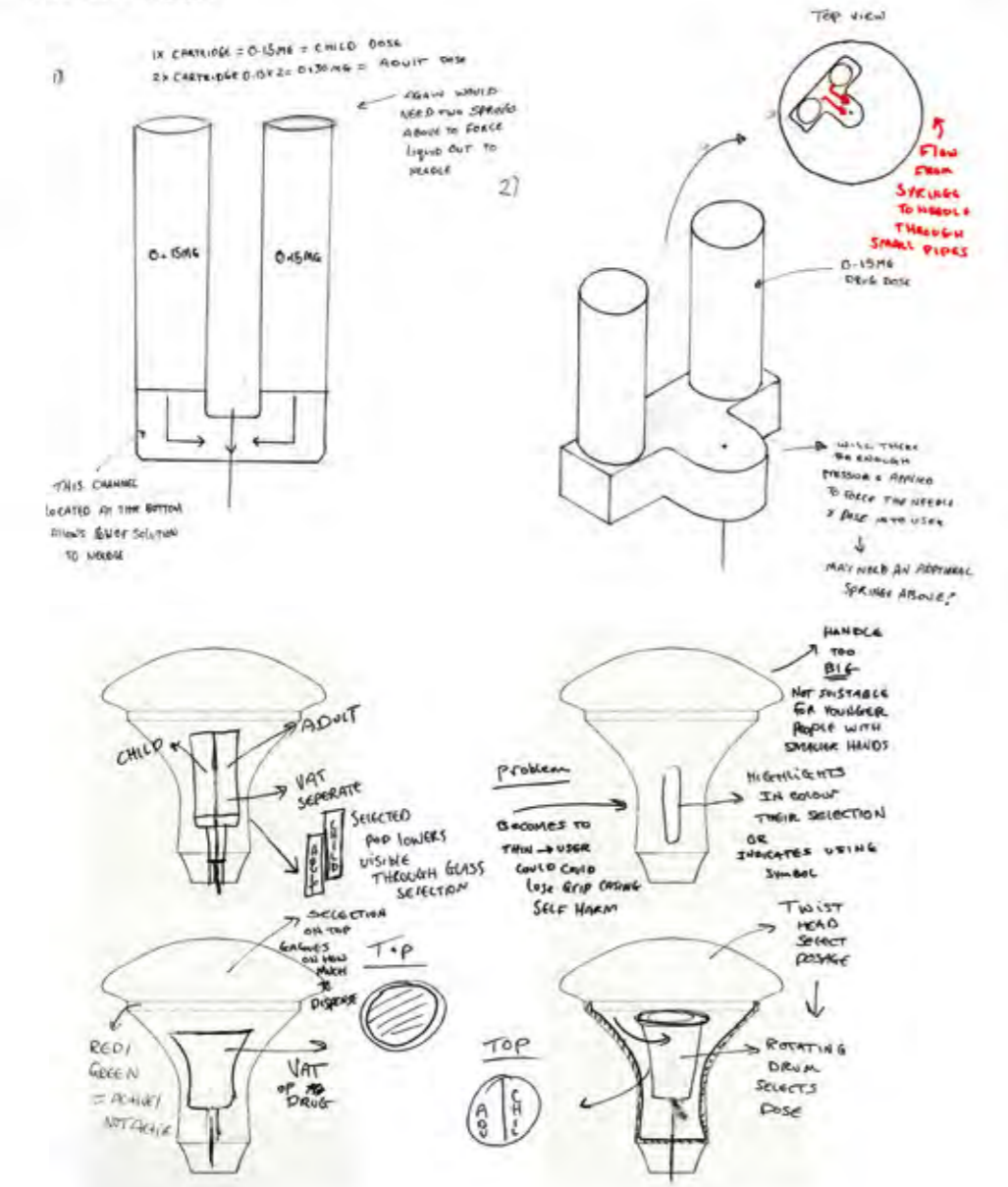


As you can see on the physical prototype, the new prototype sits comfortably in the palm of the hand and has been designed to fit better with younger adults as their hands are smaller. However upon testing it with another of people, I have decided to increase the diameter of the palm handle to 75mm, as most thought the handle felt a little too small.

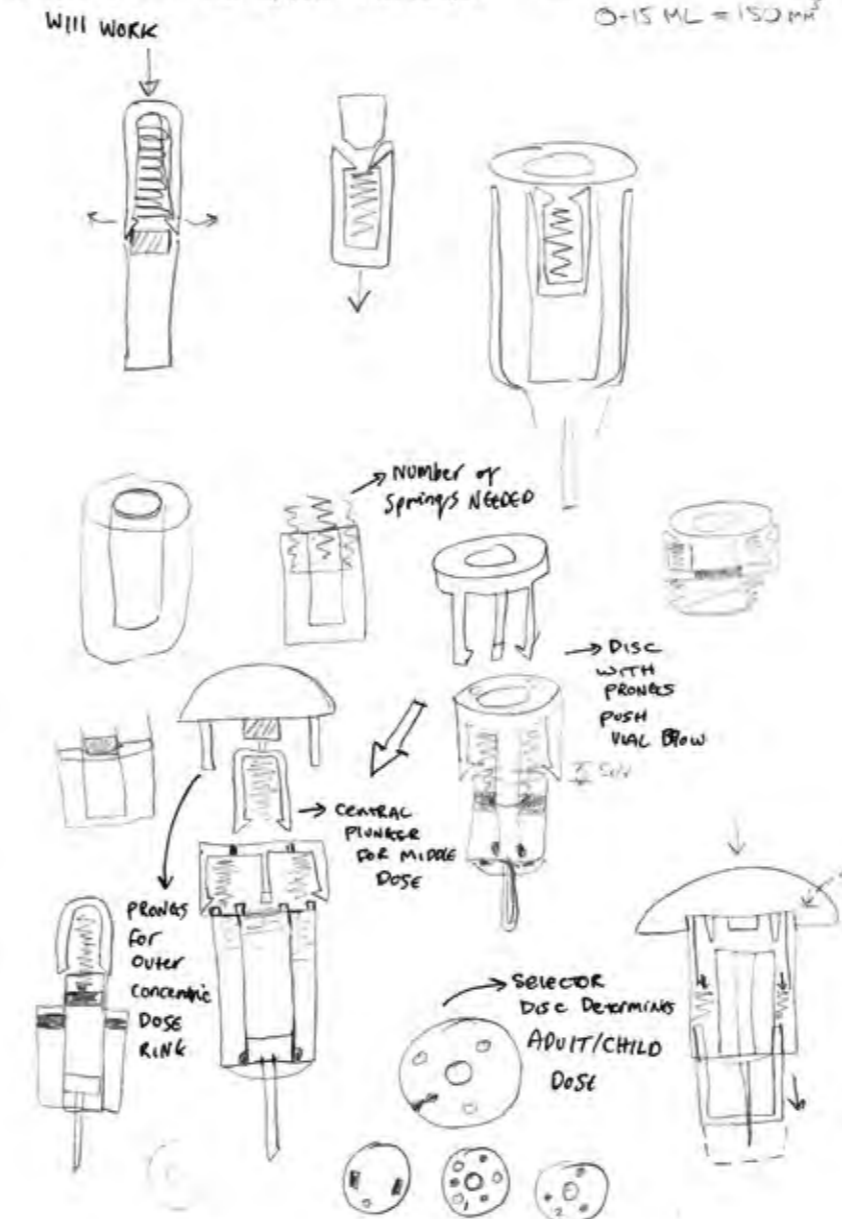
EPIDEN INTERNAL MECHANISM IDEAS



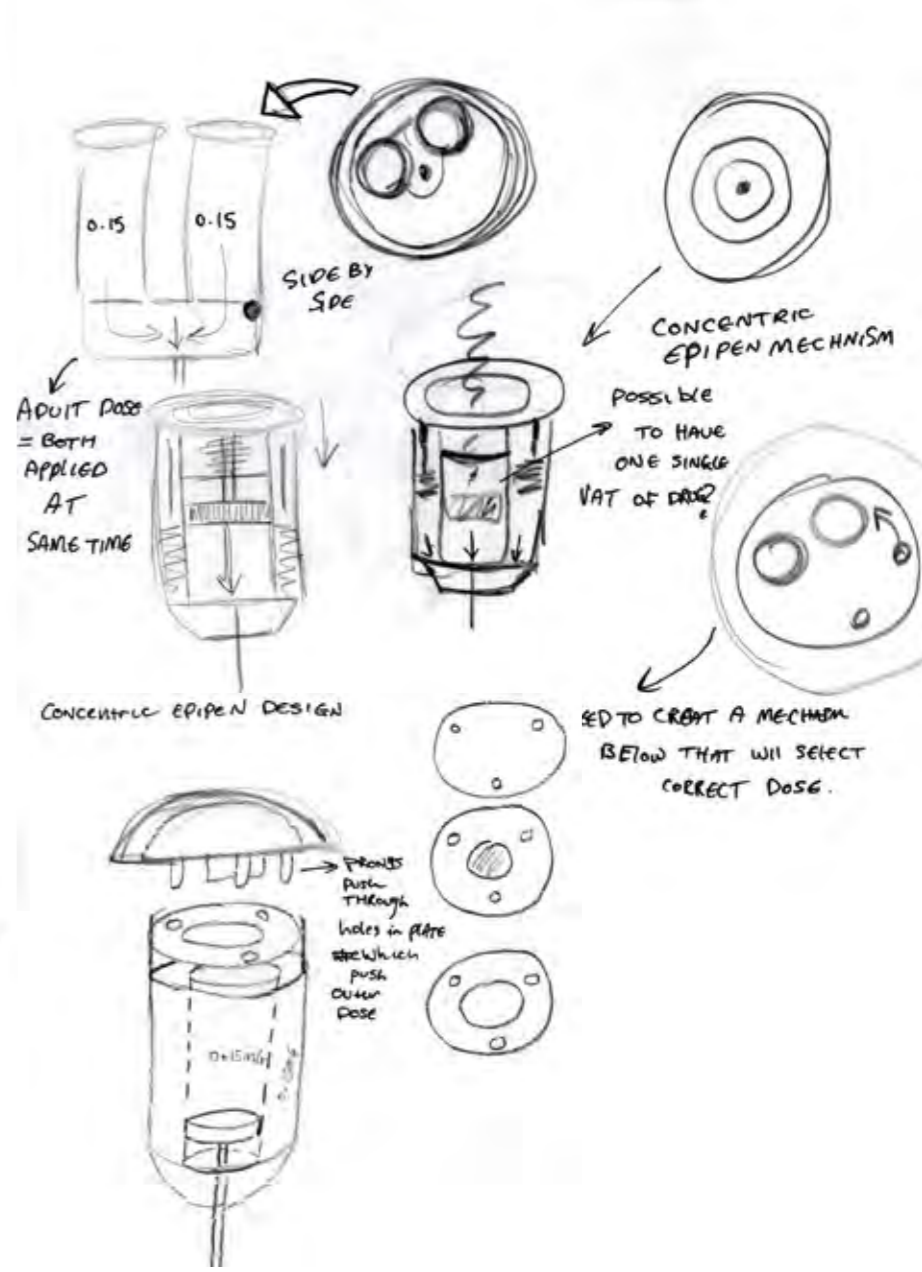
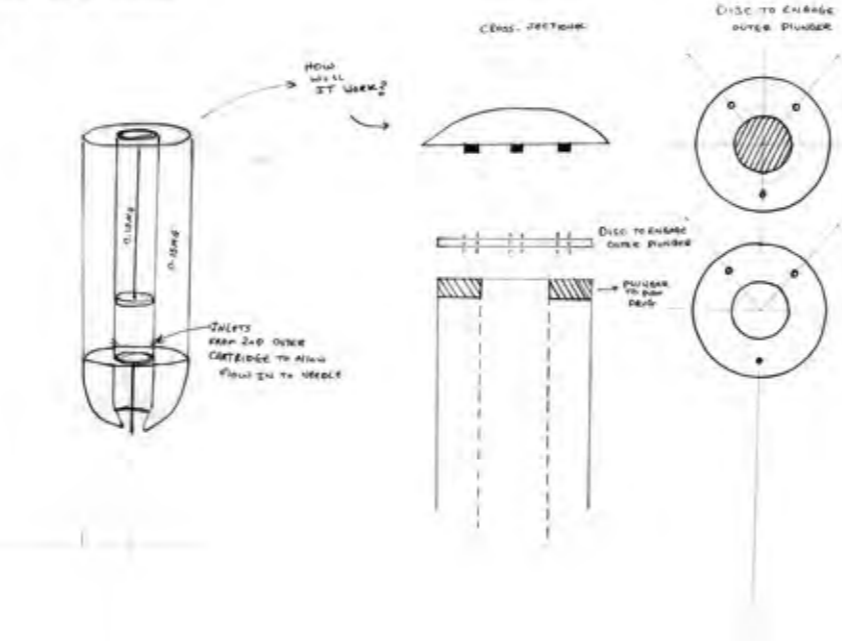
EPIDEN INTERNAL MECHANISMS



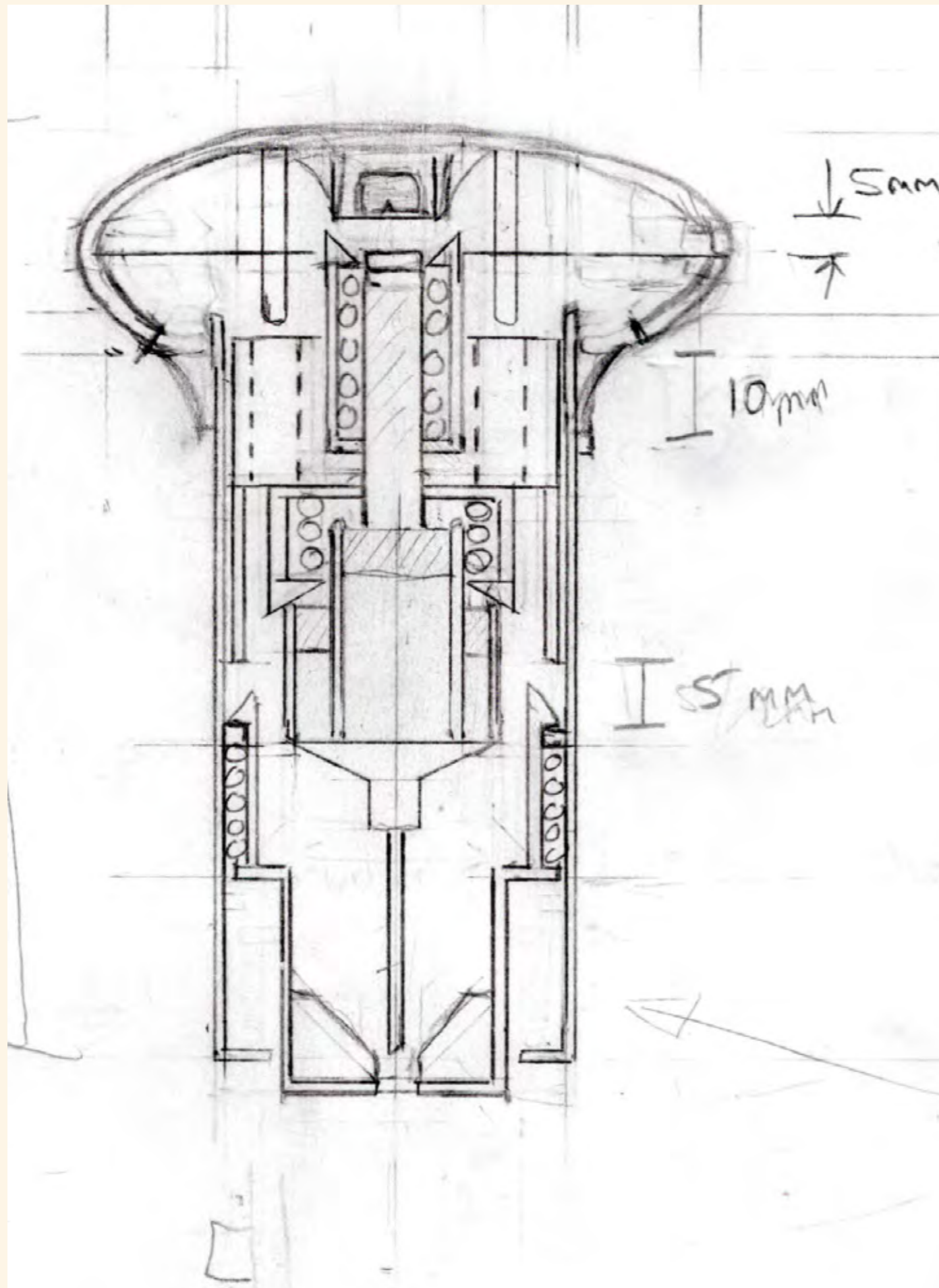
WORKING OUT HOW EPIDEN MECHANISM



EPIDEN INTERNAL MECHANISMS



After exploring and developing various mechanisms which could be used within the epipen, I have decided to adopt the design that uses two medicine vials, one concentrically placed within the other.



The proposed design now had a 75 mm handle that would sit comfortably in the palm of the hand.

Another few changes included the main case overall length had to be increased to allow space for the 25 mm long needle. This longer needle is guaranteed to penetrate the leg muscle, while existing EpiPen design use a 16 mm long needle which isn't always able to penetrate the fat layer above the muscle proving ineffective.

Another Factor was due to the size of the vials needed to store the emergency drug (Epinephrine) within a concentric mechanism. As of this the design needed a long enough plunger to push the drug out of the vial into the needle when applied.

The new developed concept of my epiPen design has increased in length, this was because research suggests that to deliver adrenaline effectively the needle should be at least 25mm long. The needle needs to penetrate below the layer of fat beneath the skin.

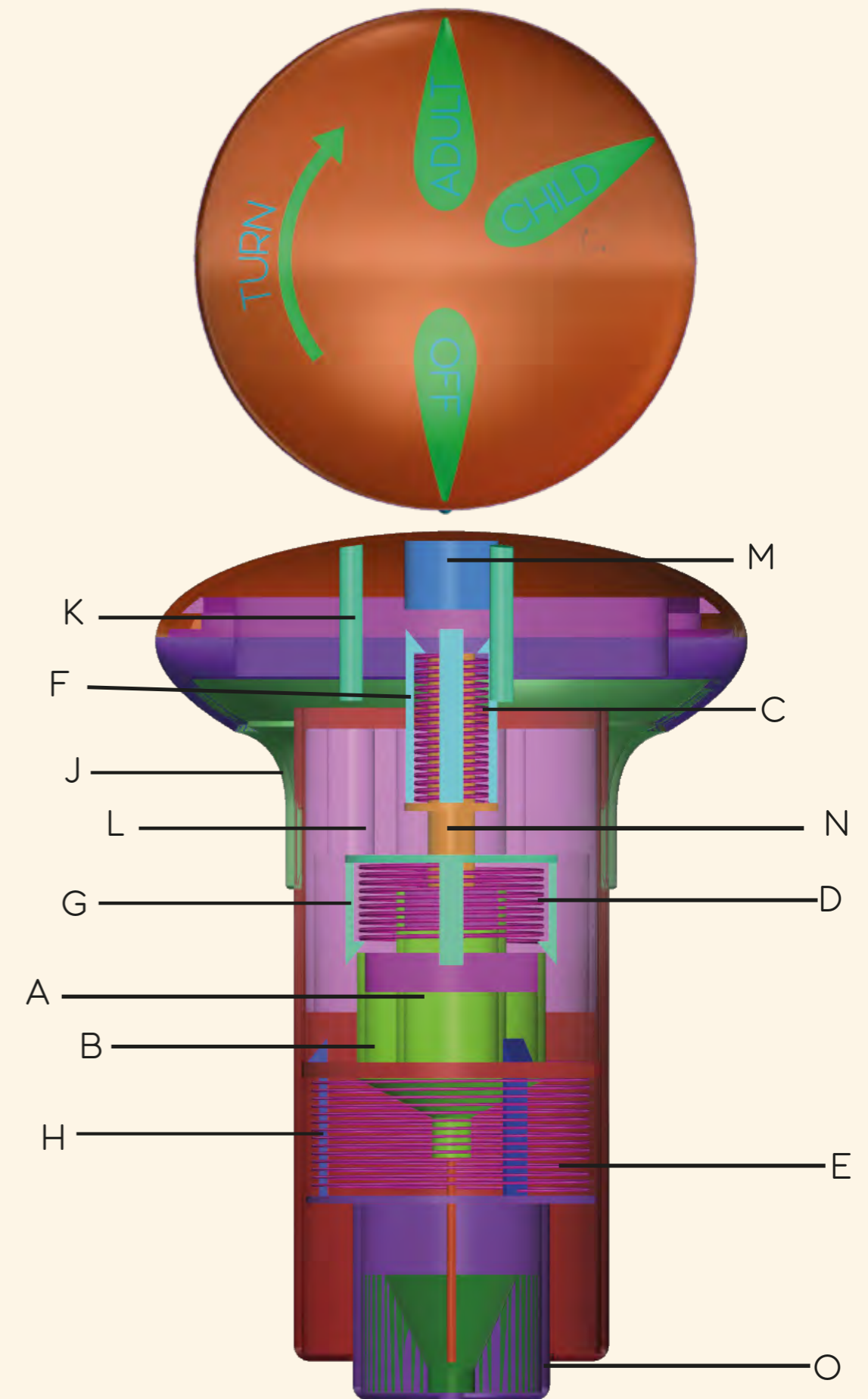
# EpiPen Development - How Does the Mechanism work?

## Development - How Does the Mechanism Work?

1. This design for an EpiPen type allergy unit is different because the User is able to select the correct dose of Epinephrine (Adrenaline) medication to be dispensed for either a Child (0.15ml) or Adult (0.30ml). This done by having two, concentric, syringe vials each containing 2 ml of Epinephrine (A and B) - only the correct dose is delivered to the patient, the balance remaining in the delivery system.
2. For the EpiPen mechanism to work, it is necessary for the needle to be deployed out 25mm on operation and the correct dose of drug to dispense. The design approach utilizes compressed springs being activated to achieve this (C and D). A third spring is used to deploy the needle cover following use (E). Each spring is held in a circular holder with three prongs which keep the spring compressed (see F, G and H).
3. When the unit is used by a Child, only the central spring (C) is released and Vial A dispensed. When used by an Adult both springs C and D are released and both the central Vial (A) and outer vial (B) are dispensed at the same time.
4. The unit works by holding the large Palm Grip head in the palm of the hand and jabbing the other end into the upper thigh. The Palm Grip is able to push down on the rubber diaphragm ring (J) to activate the springs and dispense the needle and Epinephrine dose.

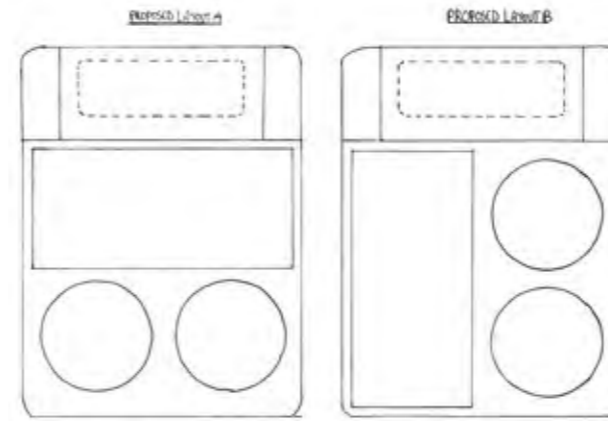
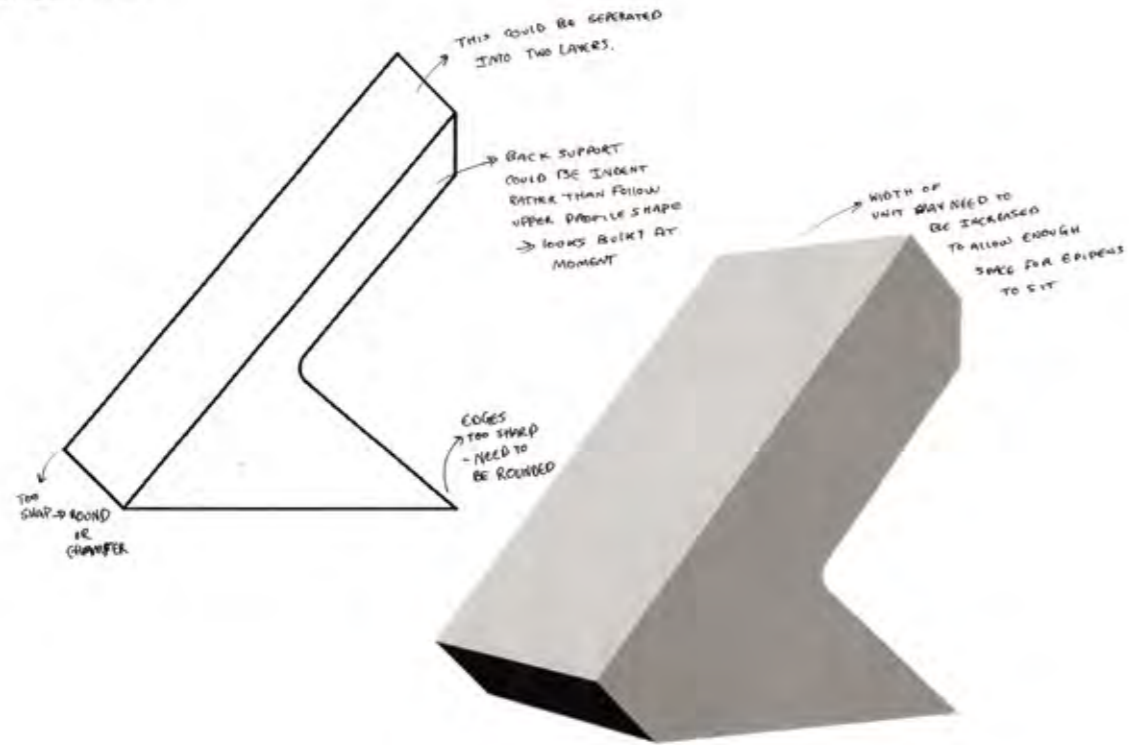
## How the Unit Operates

1. In operation the User selects the dose they need to administer (Child or Adult) by rotating the large Palm Grip section of the unit clockwise to the desired dose. A triangular marker on the lower section of the Palm Grip (located opposite the OFF) indicates where to turn to.
2. When the Child option is selected, the Palm Grip rotates so the three prongs (K) locate over holes in the 'cotton reel' disc (L). Jabbing the unit into the upper thigh pushes the Bung (M) inside the Palm Grip down onto the prongs (F) and releases the spring (C). The spring forces the Central Plunger (N) down which pushes the needle 25mm out of the bottom of the unit as well as dispensing only the central vial (A) of 0.15ml of Epinephrine. The three prongs in the Palm Grip (K) just locate into the holes in the 'cotton reel' disc (L).
3. When the Adult option is selected, the Palm Grip rotates so the three prongs (K) are located over solid points on the upper face of the 'cotton reel' (L). When the Palm Grip is pushed down, the Bung (M) activates the central vial spring (C), pushing the needle out of the unit. At the same time the three Palm Grip prongs (K) push the 'cotton reel' down activating the outer vial spring (D). Consequently, both vial springs (C and D) push down together and each vial dispenses 0.15ml so delivering a total adult dose of 0.3ml at the needle end.
4. The downward force also releases the needle cover spring (E) so when the unit is removed from the leg, the Needle Cover (O) pushes out to cover the protruding needle and making the used unit safe.

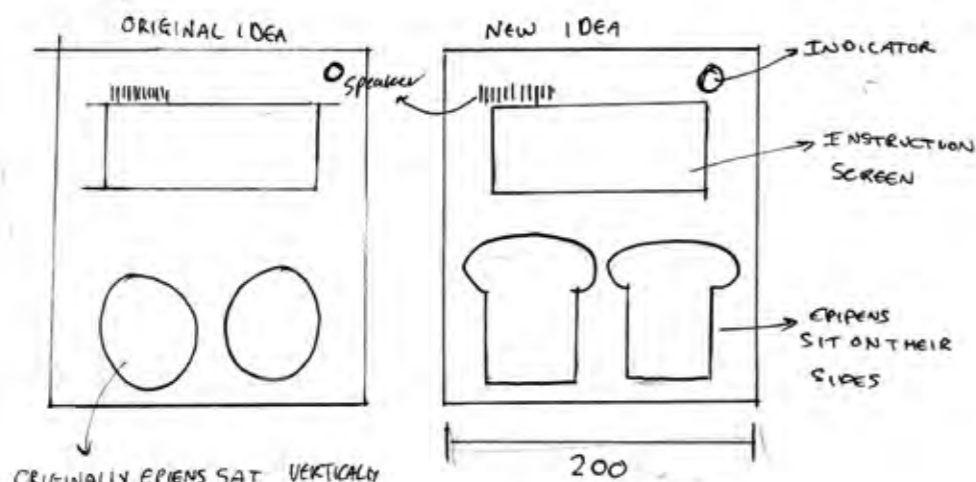


# Epipen Development - Response Kit

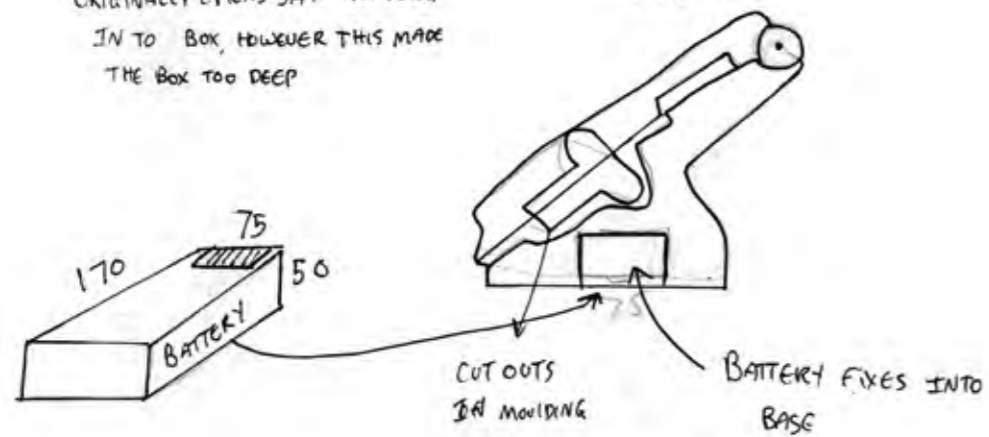
MEDICAL BOX DEVELOPMENT



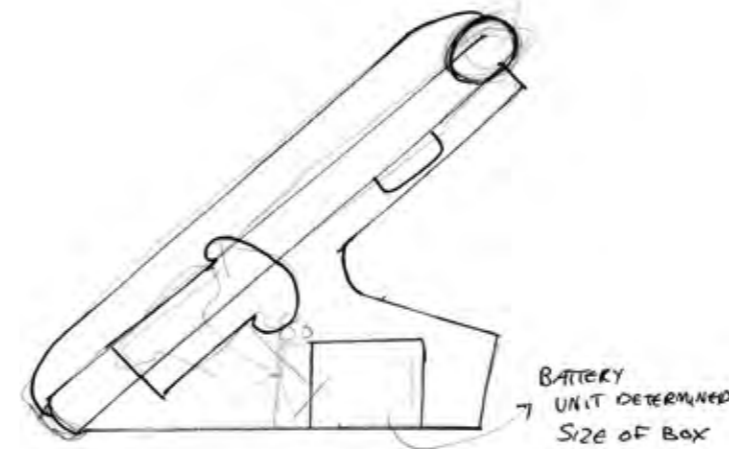
These layouts seemed a good design at the time, until I realised that these units would have to be very deep to ensure that the epipen could fit in vertically. I therefore decided that the epipens could be placed on their sides and this therefore reduced the overall depth needed.



ORIGINALLY EPIPENS SAT VERTICALLY IN TO BOX, HOWEVER THIS MADE THE BOX TOO DEEP



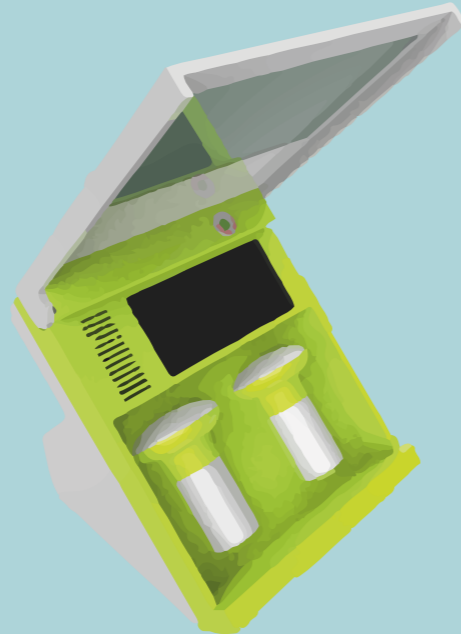
The idea here, was to place the epipens on their side and this would ultimately decrease the amount of depth needed than previously before.





# Allee-Save Response Kit - Visual Screen Examples

REMOVE ONE  
ALLEE-SAVE



IDENTIFY DOSE  
FOR CHILD OR ADULT



SELECT REQUIRED DOSE  
ROTATE UNIT HEAT CLOCKWISE  
DOSE OPPOSITE TRIANGULAR MARKER



CALL 999  
NOW

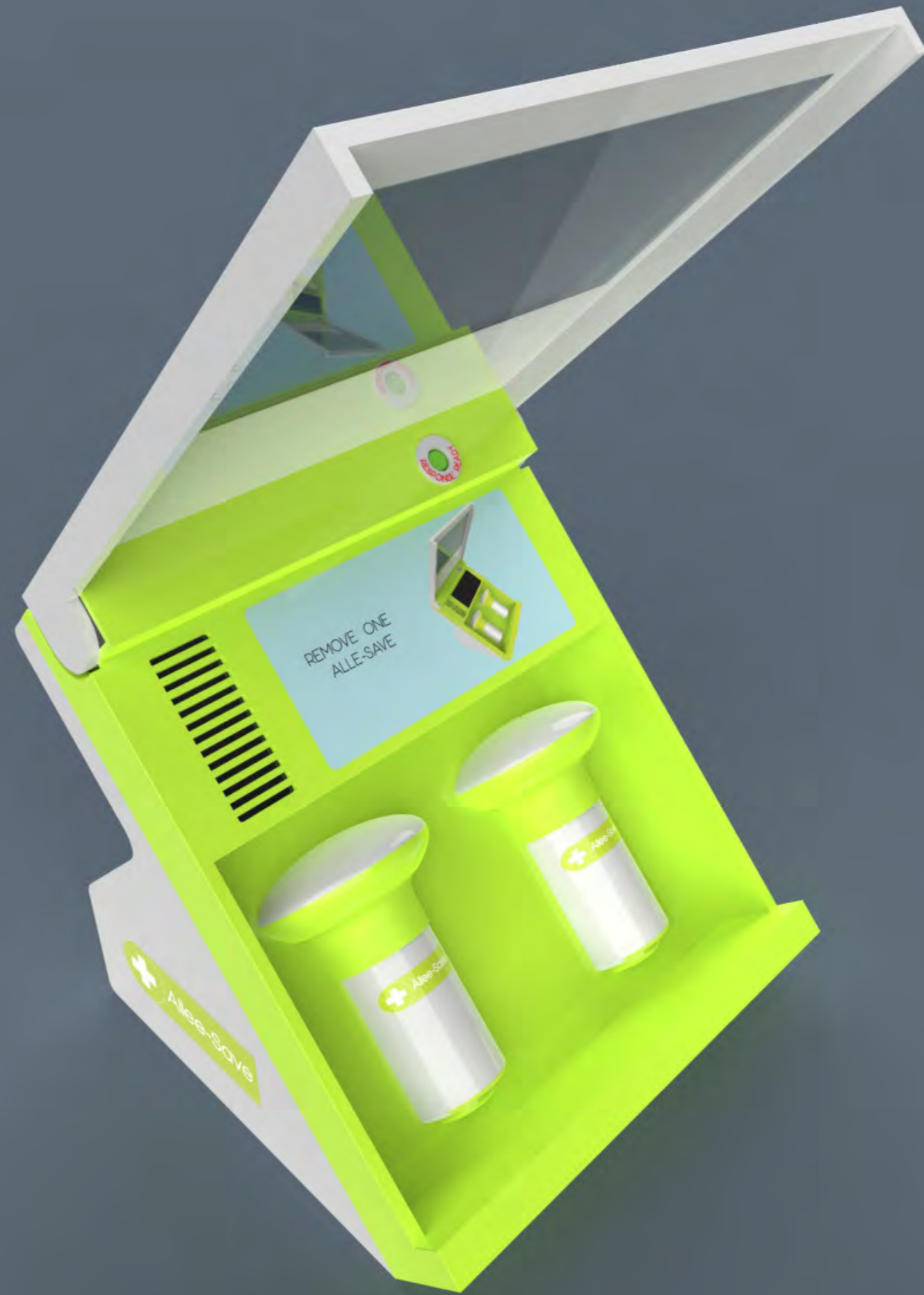


# Final Concept









REMOVE ONE  
ALLE-SAVE

Alle-Save

Alle-Save

Alle-Save