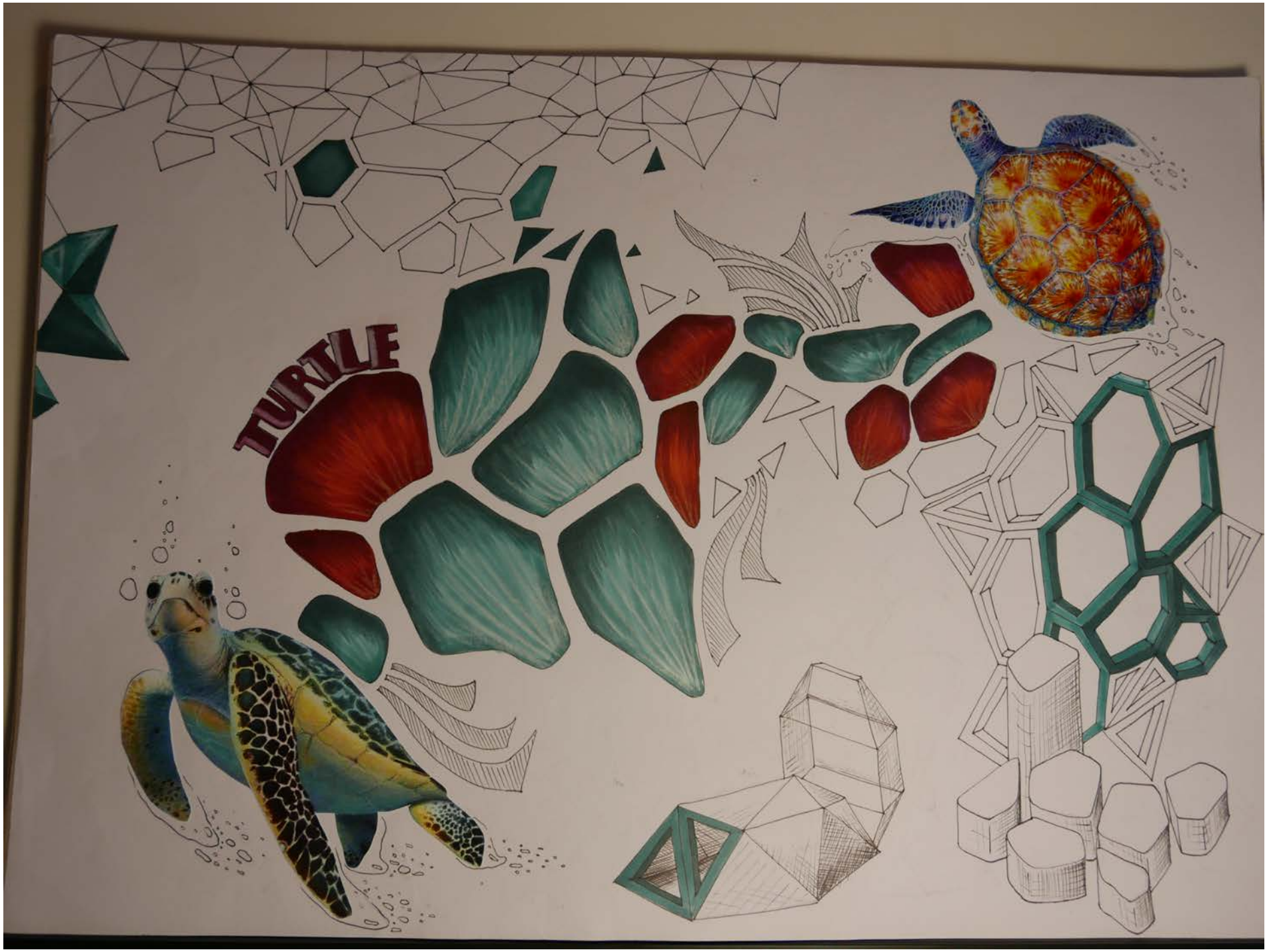
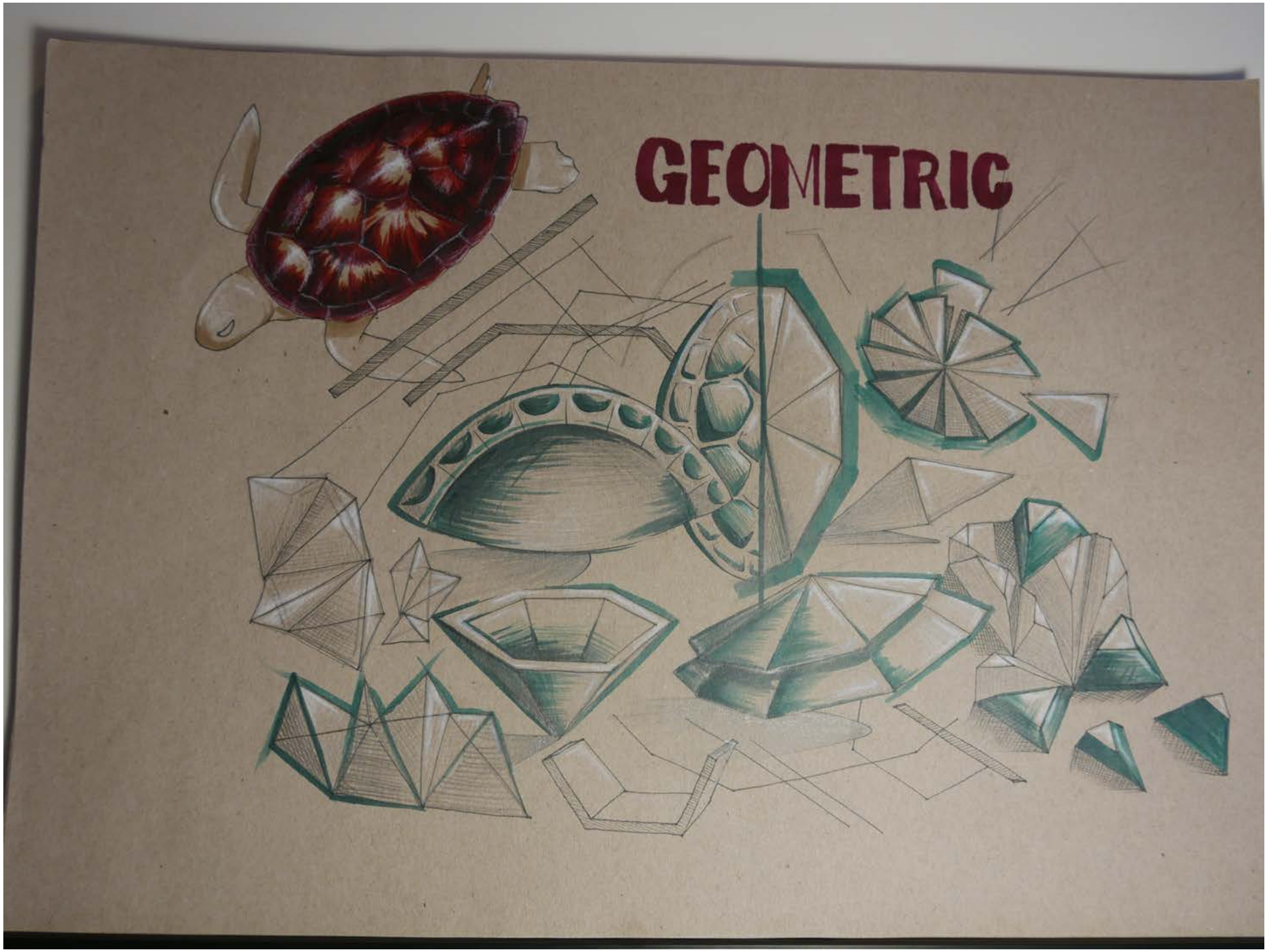
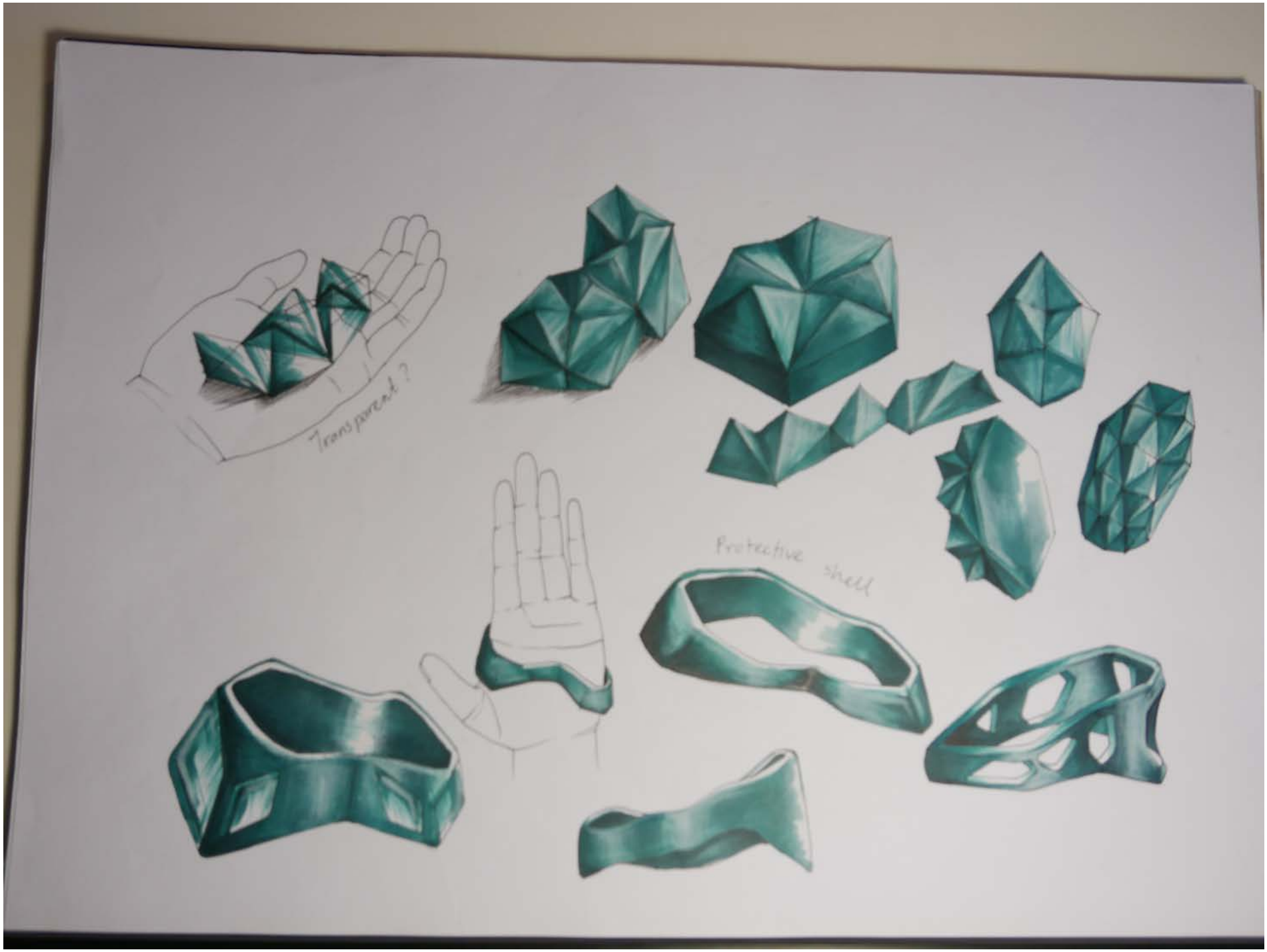

TURTLE


EDGE


GEOMETRIC


GAPS


Curves
hooded eyes
eye shape
plated skin
layers


Transparent?
Protective shell


layered eyelids
curve
the base of the

Chosen concept

I have chosen this design as my chosen concept because of its sleek and elegant shape. Inspired by forms and aspects of a turtle, it captures the aesthetic aspects of the turtle into a design. With a very simple look, it leaves room for potential to be developed and resolved into a product producing light, possibly in relation to water due to the sea/water being a main part of the turtle's environment. Therefore I hope to produce a light produce which has a strong purpose in the water.

Context/story

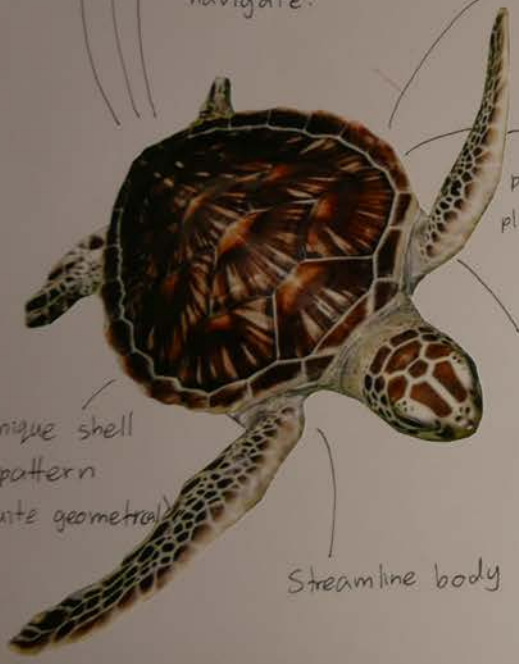
live underwater

navigate underwater

eye-sight is moderate so can't see well in dark waters. They rely on other senses to navigate.

SUMMARY:

- like turtles, humans cannot rely greatly on their eye sight to navigate underwater.
- Unlike turtles, humans do not have other senses to help navigate
- My product will provide people with the ability to navigate underwate with ease like the turtle, with style!



hard protective shell (carapace)

shell is protected by plates (scutes)

Webbed feet/ flippers

unique shell pattern (quite geometrical)

Streamline body

Lake 'pitch black' when divers died

Fatal dive inquest: Water went 'pitch black'

WHO? - underwater scuba divers
- lake divers
- divers who aren't confident?
- divers who want additional safety?

WHAT? - my product will be an underwater light which divers can conveniently carry around with them to navigate around the dark depths of water.

WHERE? - lakes?
- lake diving?
- maybe oceans?

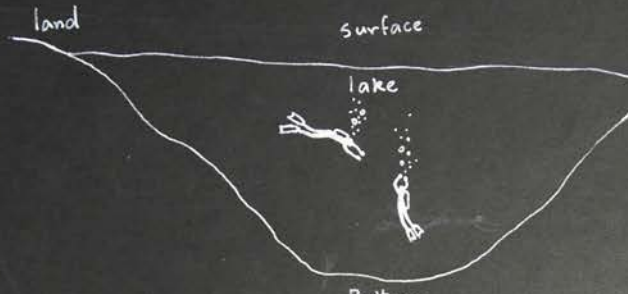
WHEN? - light product would be used when divers go underwater and can't navigate in the dark (deep waters where sun-light cannot reach.)

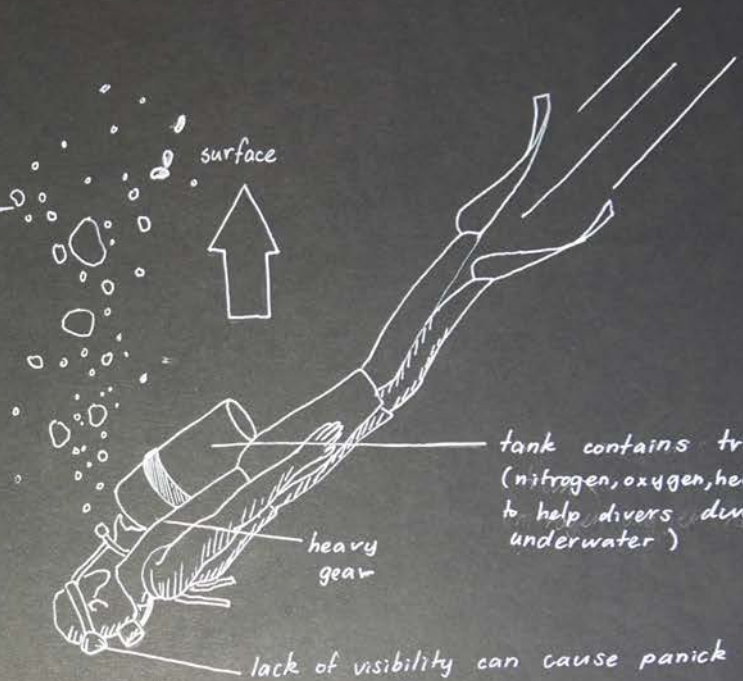
WHY? - to ensure the safety of all divers of all levels. Divin can cause disorientat and confusion of direction. The light product will provide divers with the necessary ligh to navigate throug waters while keepin safe.

Human + environmental factors

Products purpose:

- aid with visibility underwater
- not large or heavy so does not sink diver
- aid with direction
- comfortable / fits well
- waterproof and durable
- provide safety





lack of VISIBILITY

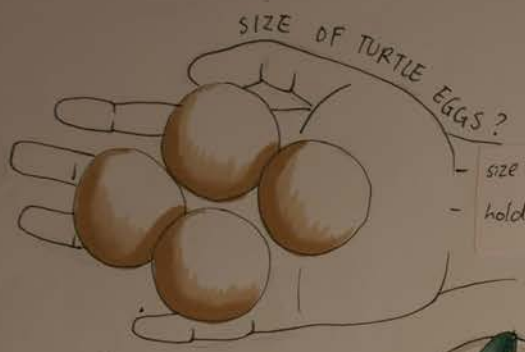
DISORIENTATION

CONFUSION

no sense of DIRECTION

UNDERWATER

Concepts



- size of turtle eggs? (very small)
- hold multiple in hand?

- small product would be light and easy to carry underwater

- how many should a person have? (or need?)

- how could a person hold multiple lights at once?

- how to place lights in sea? lake? water?

- turtle egg nest

Turtle egg nest

Concepts – How to carry multiple lights?

container for light?

bottle

lid

screw lid

lots? fewer?

lights inside cylinder container

wrist magnetic band for lights?

! not convenient or that useful/effective !

- multiple small lights, what if they're arent enough?
- you could lose lights
- have a single portable light?
- more convenient?
- have a wrist light product? (that solely acts as a light on it's own?)

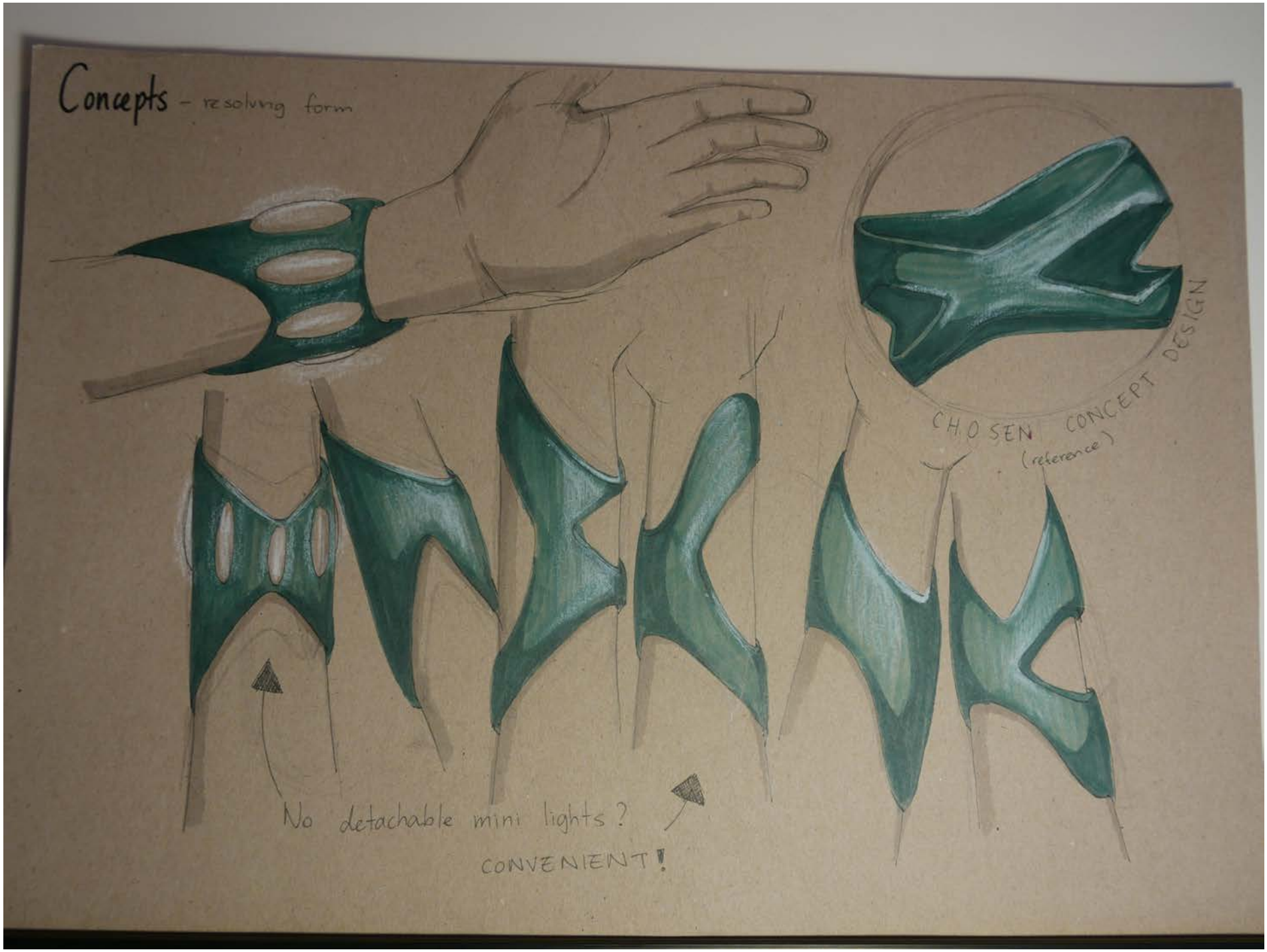
wrist light?

too small?

drop lights like 'breadcrumbs' and leave a trail to guide divers

magnetic

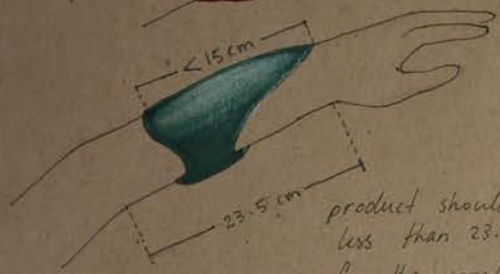
Will these size lights be large enough to be seen underwater? Should make larger?


Concepts - resolving form
CHOSEN CONCEPT DESIGN
(reference)
No detachable mini lights?
CONVENIENT!

Ergonomics

comfortable sleek curves

ARM? WRIST? HAND?



product should be less than 23.5cm (approx) for the comfort of the user.

approx 15 cm?

- restricts movement of hands
- the movement of hands is important
- divers to navigate through the water (therefore cannot be on the hand.)

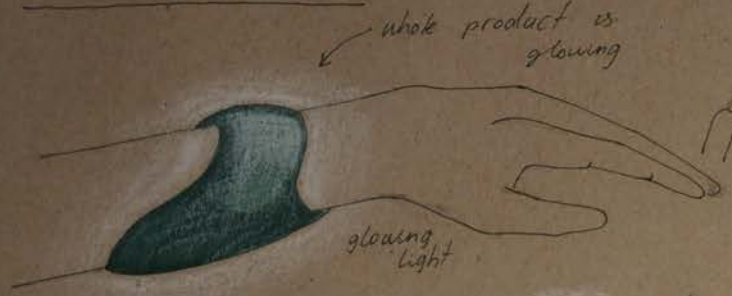
divers use 'sculling' hand movement so their wrists must be free to move

[sculling]: moving wrists and hands (waving) to control movement

divers need freedom in their wrists while moving underwater

How will my product produce light?

WHERE IS THE LIGHT?



bright light is in the eye's line of vision, could be annoying and harm eye if it continuously shines.

light on top? would light be too small?

brightness of light could harm vision of wearer if person stares at light.

light on top? bottom?

too small!

brightness of light/ light rays will not bother eyes of wearer or others easily.

so light should be underneath

LIGHTS UNDERNEATH:

make light bigger? but will it be too heavy on the arm? take too much effort to wear / carry? light is brighter

large portion of bottom as light. light is still at bottom so will not harm eyes. weight will be more distributed, so feels less heavier. wider light area so gives more light.

← light from rim of the product more control over the light?

Turtles : how do they find their way?

- from birth, baby turtles pinpoint their locations of birth then travel out to the sea
- Turtle will travel thousands of miles to return to their birth place

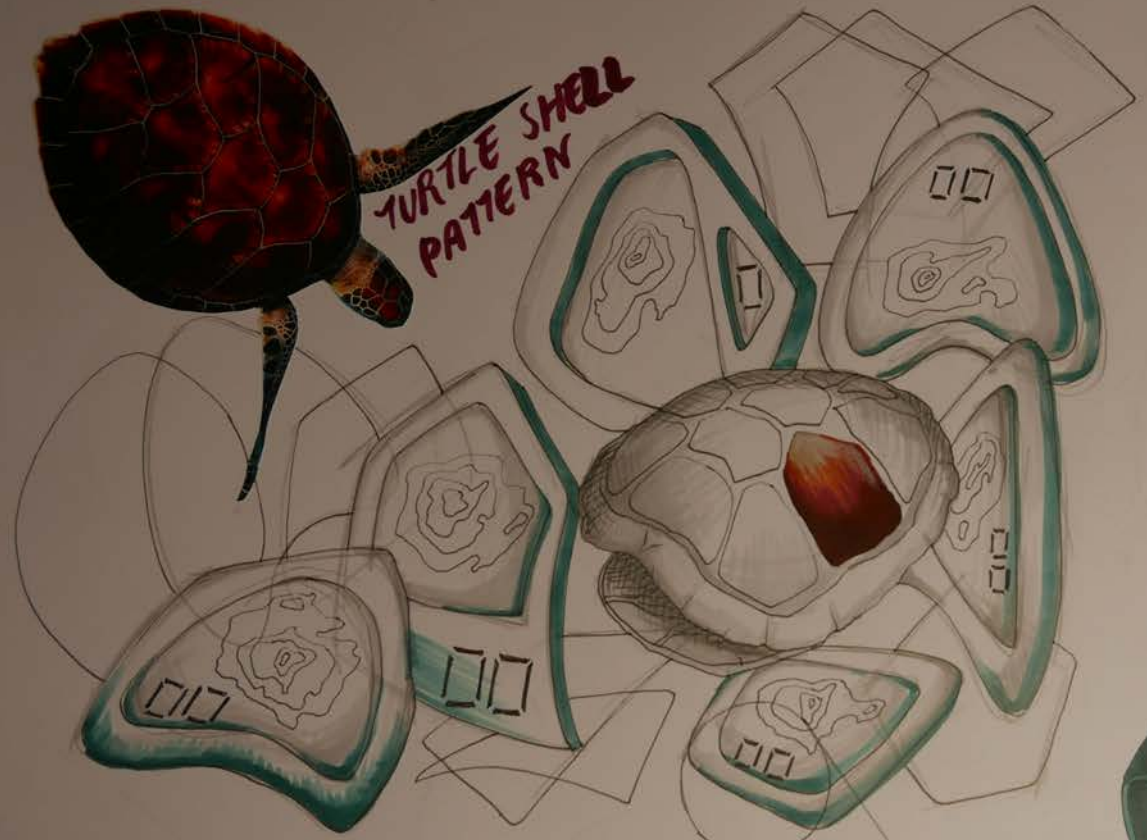
Humans don't have the senses which turtles have. How would they navigate the position underwater?
- Navigation?
- Latitude?
- Longitude?
- Track other divers in groups?

Don't worry bro, we can find our way home. We can use magnetic/and or solar compass!

- Turtles return to their place of birth years later to lay their own eggs.

HOW???
- by sensing the invisble lines of the magnetic field without getting lost.
- they can 'pin point' locations
- like an 'invisible map' in their senses
- can detect both the angle and intensity of the earths magnetic field.
- may be able to determine its latitude and longitude

Direction? Guidance? Location?



contour digital map displays area of lake and depth

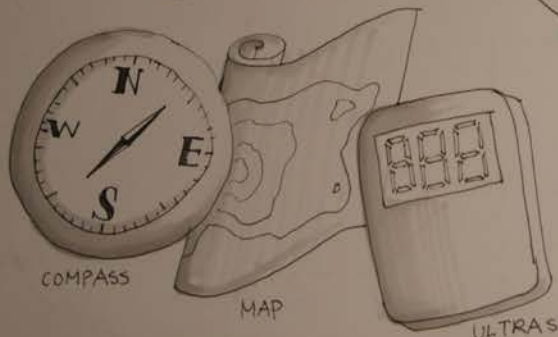
red circle: your location

green circles: location of group members

400

underwater depth meter can function up to a maximum of 400m below waters surface

DIRECTION TOOLS:



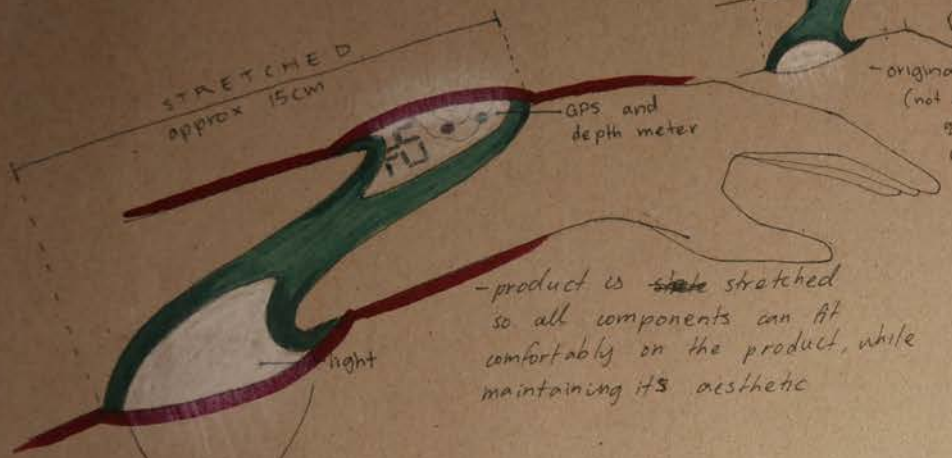
COMPASS

MAP

ULTRASONIC UNDERWATER DEPTH METER

400m (max)

How will components fit on my product?



- original (not enough space, quite small, would be crowded with GPS component as well.)

- product is ~~slate~~ stretched so all components can fit comfortably on the product, while maintaining its aesthetic

GPS component can be seen easily underwater

Person needs to simply lift arm to know his/her location and depth

- could possibly bigger?

- light too small

- too crowded

- some components too small

TOP VIEW

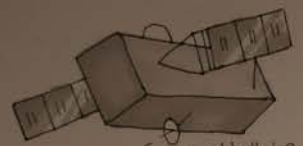
SIDE VIEW #1

SIDE VIEW #2

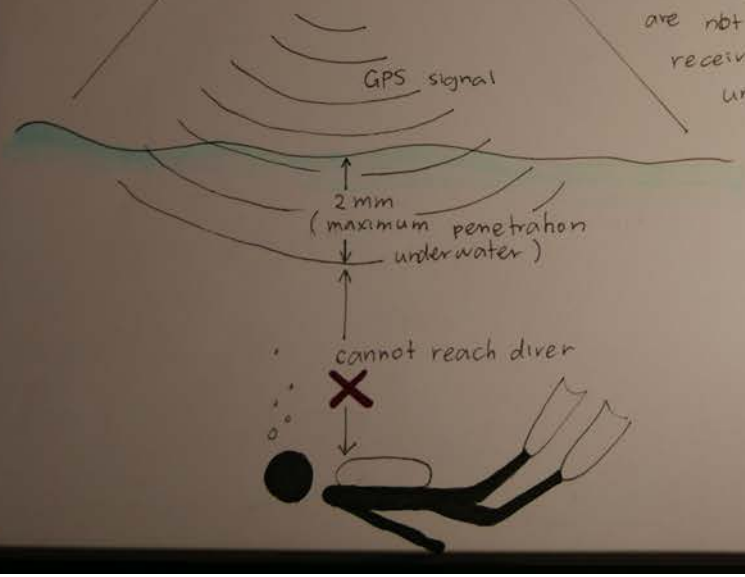
How will the GPS on my product work?

SATELLITE?

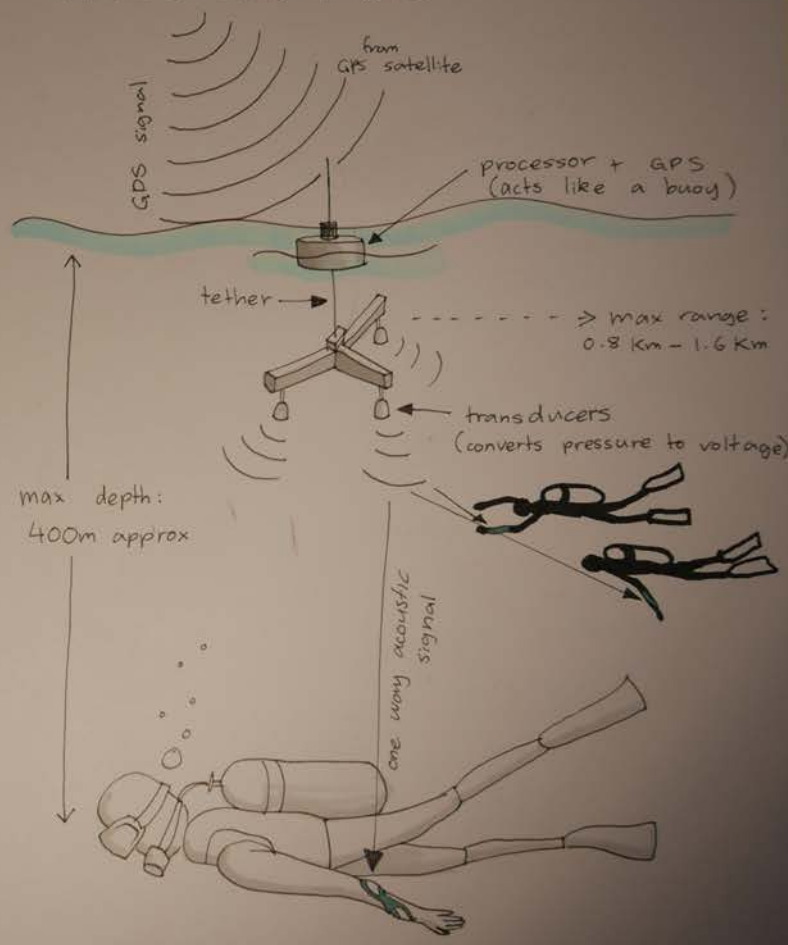
e.g google maps, gps etc



- GPS signals are not directly receivable underwater



PROCESSOR + GPS



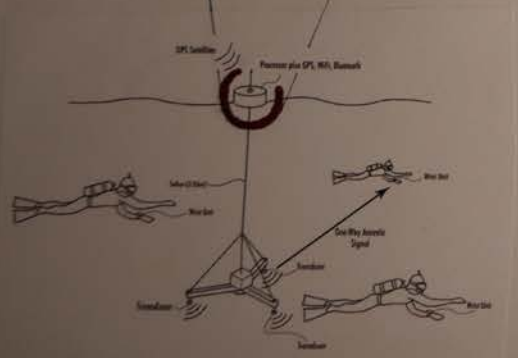
buoy designs (redesigned)

- to fit aesthetic of my product

- original buoy (GPS radio signal) design

← only top part

- aesthtic doesn't suit product
- more elegant? curved?



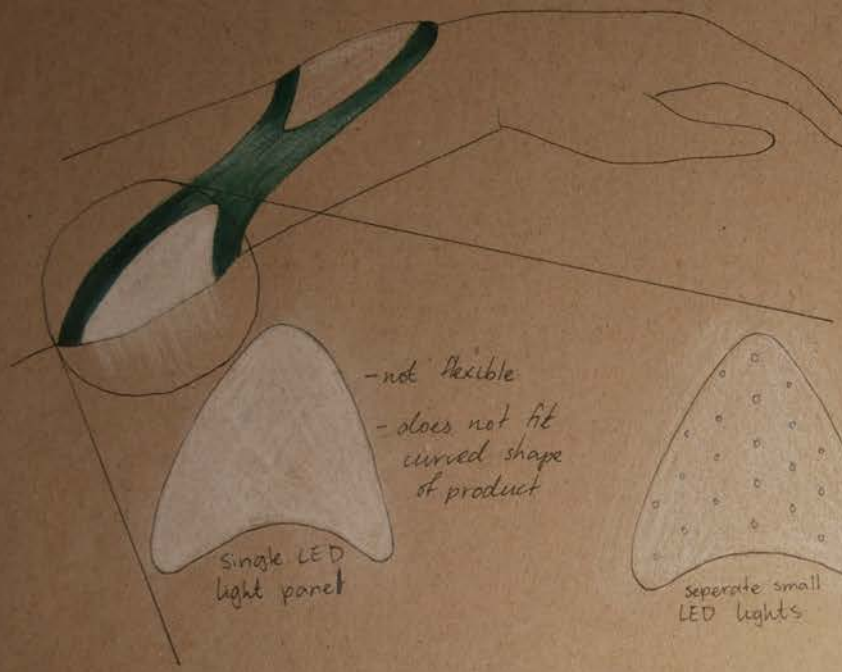
- will not stay upright
- not extremely stable
- waves would push buoy onto its side

- how to connect antenna?
- how to connect tether?
- too complicated, not simple enough

- aesthetic hasn't dramatically changed from original buoy design
- doesn't quite fit the aesthic of the light product

- bottom area is greater than top area, therefore weight at bottom is greater so will be more stable
- aesthetic fits aesthetic of light product
- antenna & tether attached in the same way so the main functions are unharmed/unaltered

How will the light on my product work?



- not flexible
- does not fit curved shape of product

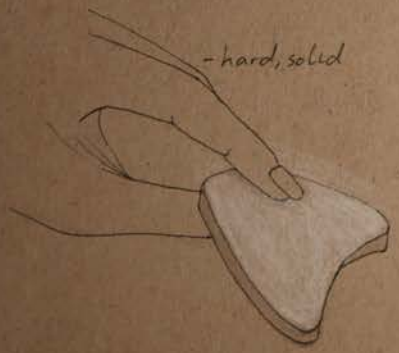
Single LED light panel

LED lights

- much brighter than regular and incandescent light bulbs
- brighter (so divers can see more underwater)
- lasts longer (uses up less energy)

- flexible
- fits curved shape of product
- comfortable

seperate small LED lights



- hard, solid

- flexible

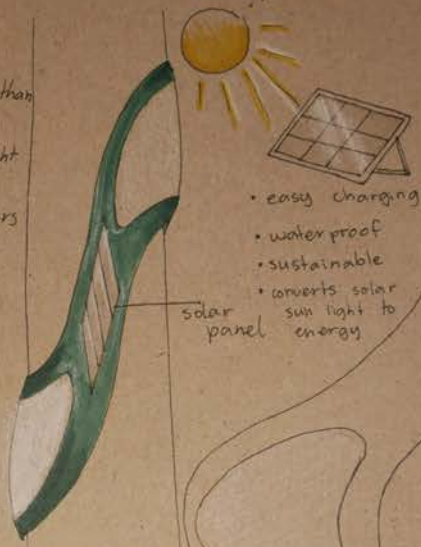
(approx thickness 10. 15 mm)

brightness is kept

very useful for forming shapes

POWER SOURCE?

Solar panels?



- easy charging
- waterproof
- sustainable
- converts solar sun light to energy

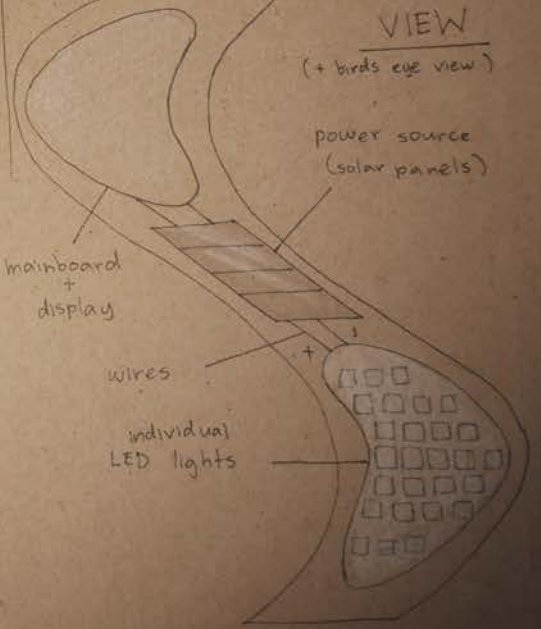
solar panel

Charging port?

- water + electricity is dangerous
- not waterproof
- fast charging (not waterproof therefore cannot use)

FLATTENED VIEW

(+ birds eye view)



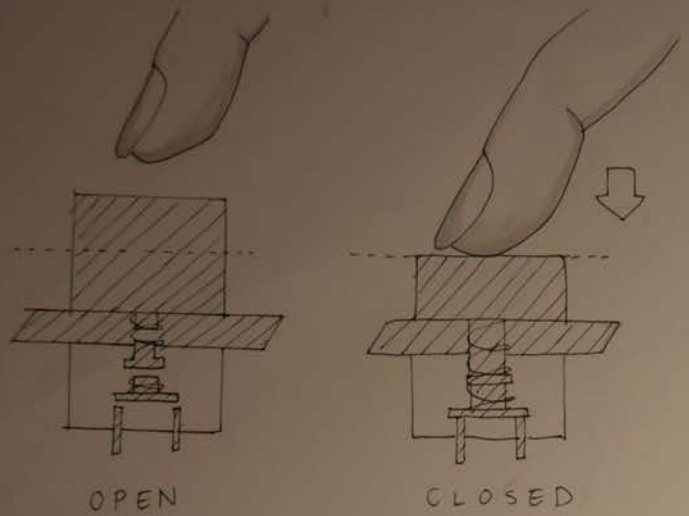
power source (solar panels)

mainboard + display

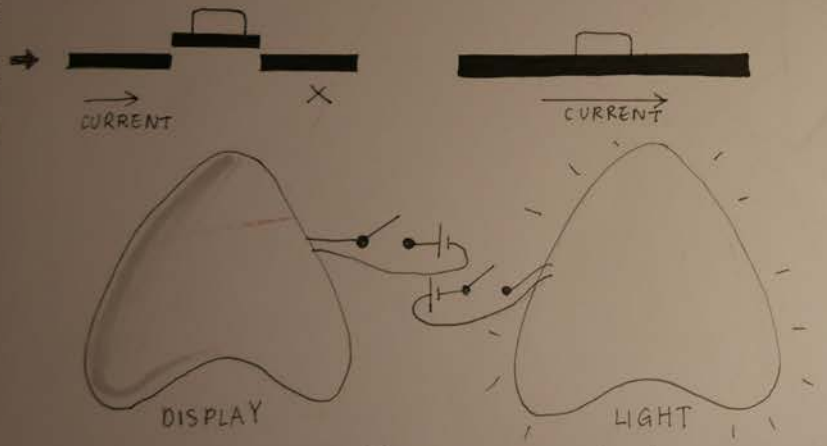
wires

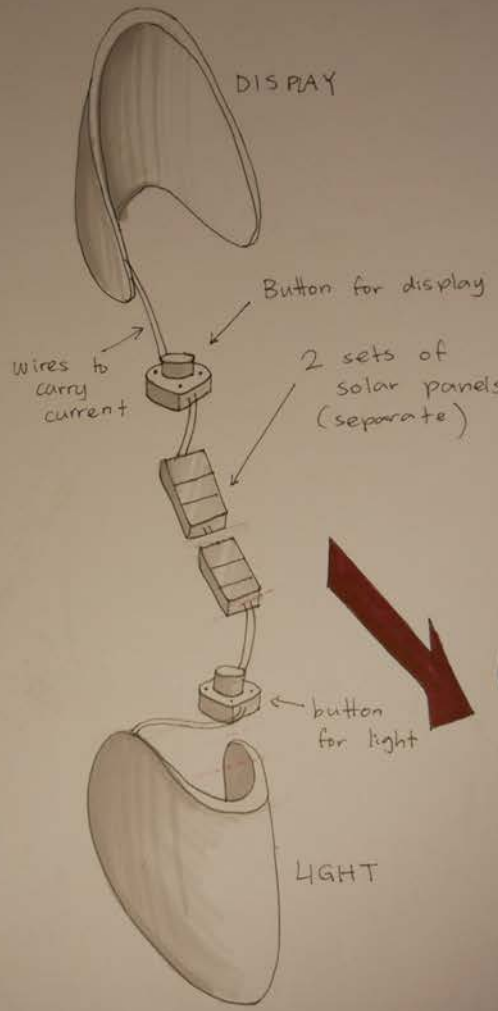
individual LED lights

How will my light turn on/off?



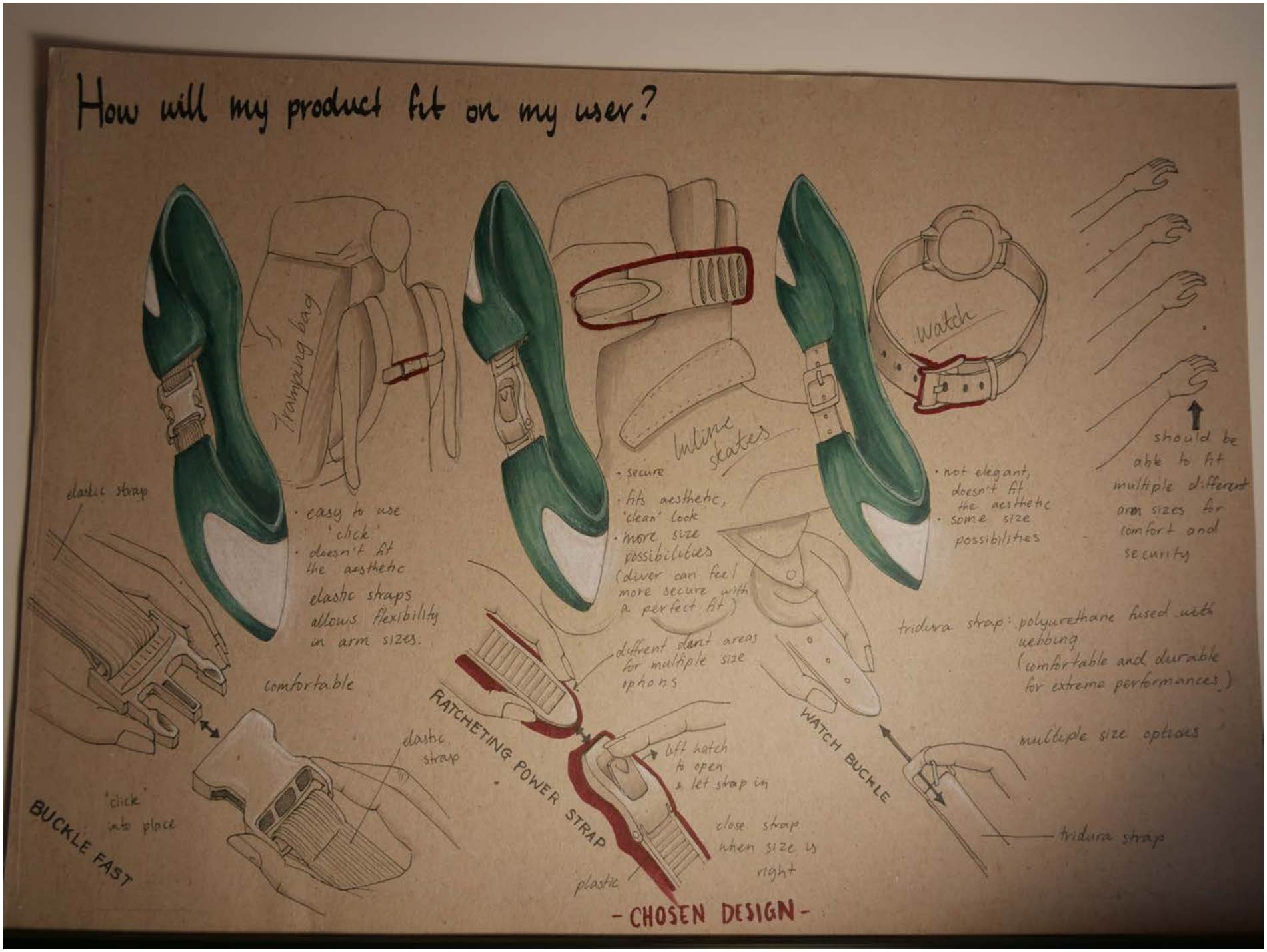
CIRCUIT DIAGRAM



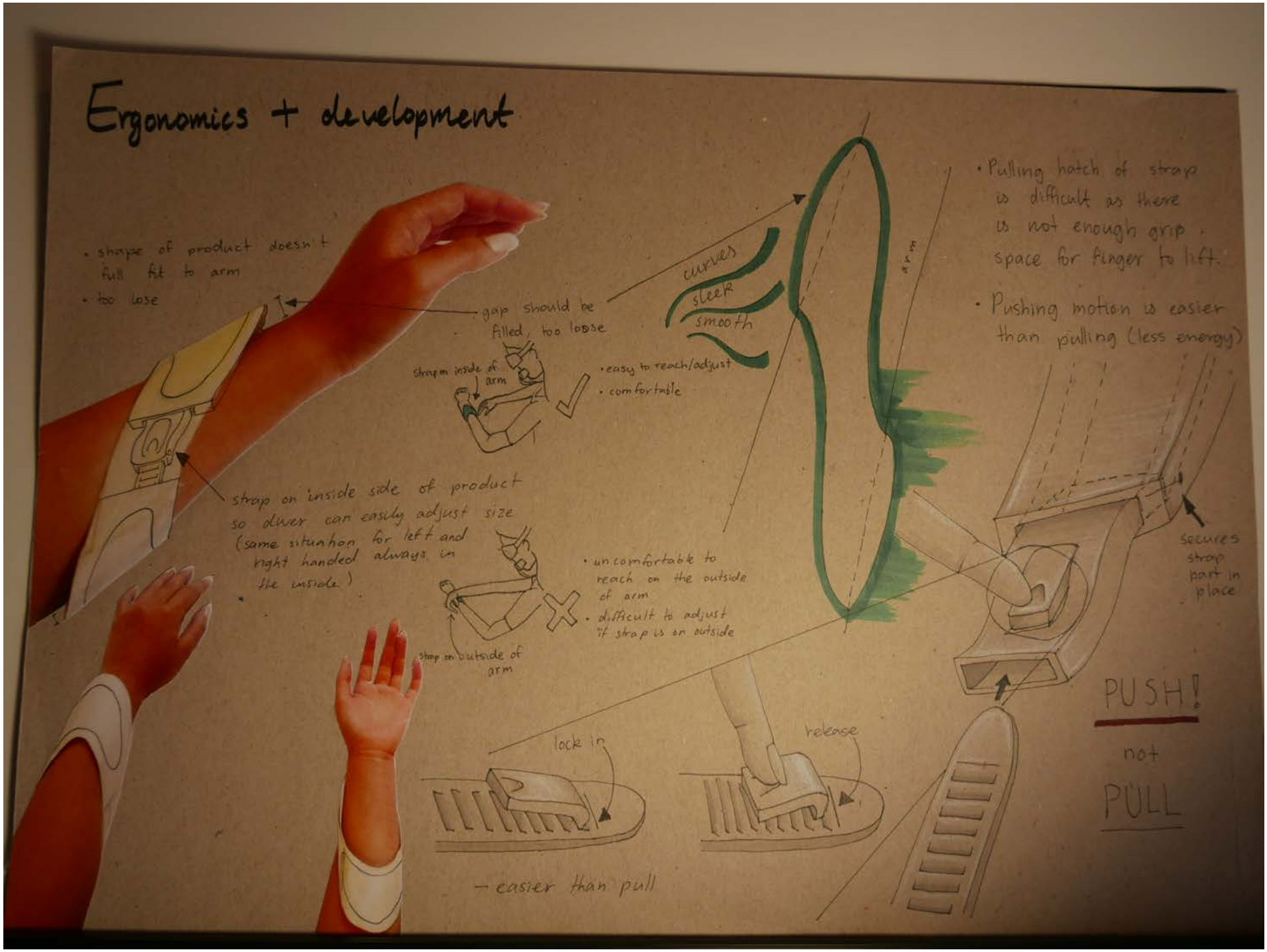


- 2 buttons to turn on/off the display / light separately
- Saves power + convenient

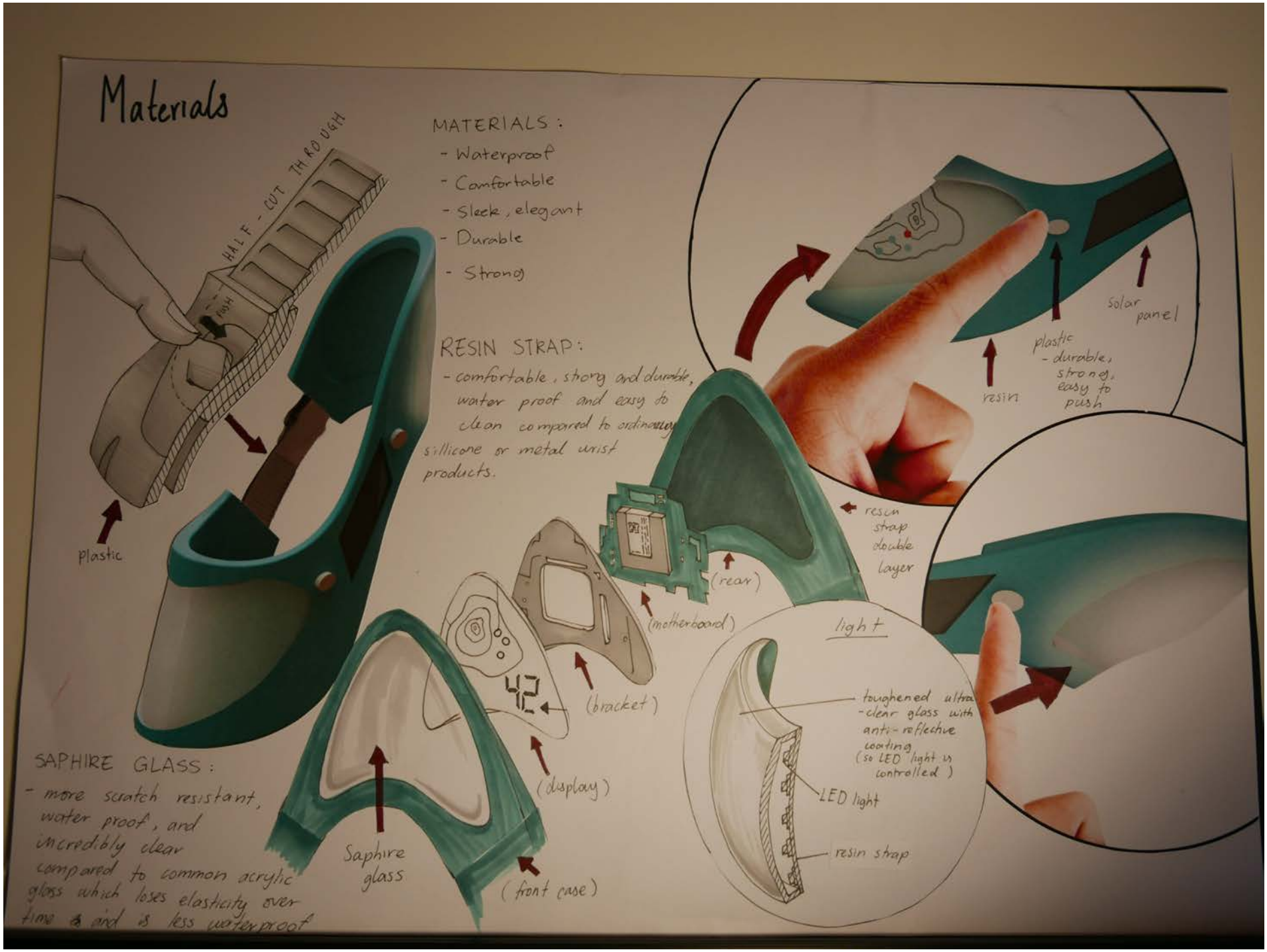
How will my product fit on my user?

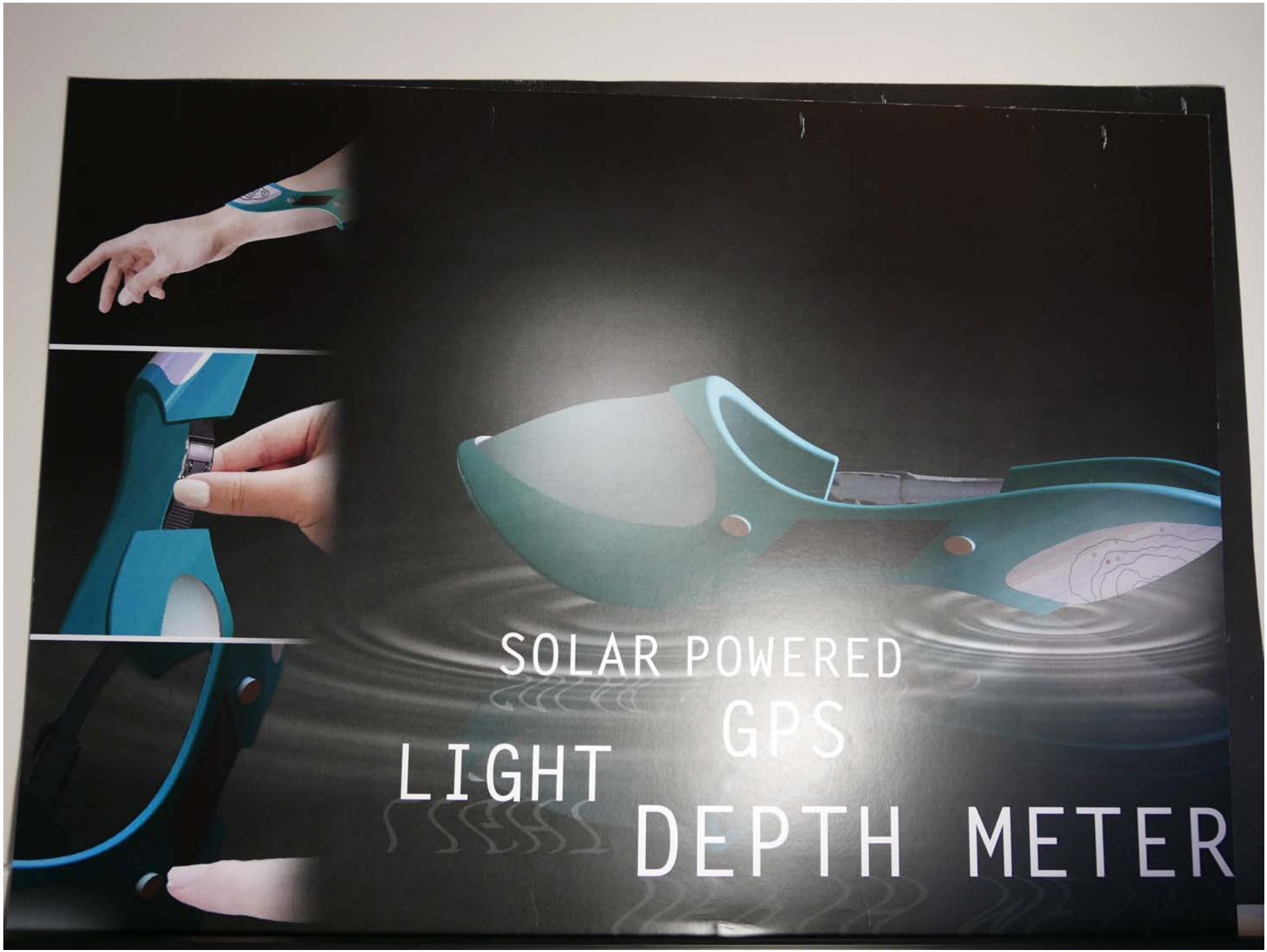


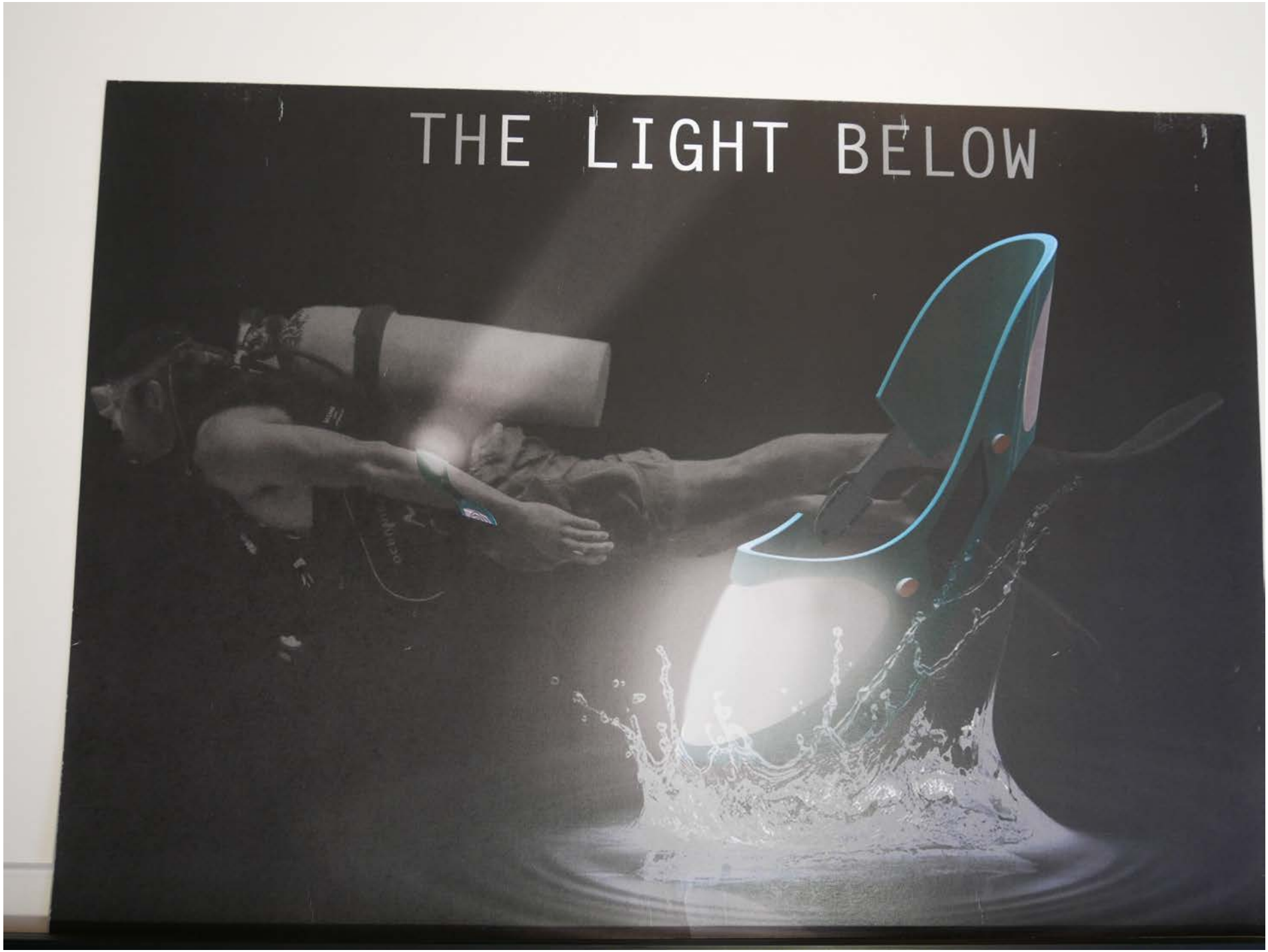
Ergonomics + development



Materials


HALF - CUT THROUGH
PUSH
plastic
MATERIALS :
- Waterproof
- Comfortable
- Sleek, elegant
- Durable
- Strong
RESIN STRAP :
- comfortable, strong and durable, water proof and easy to clean compared to ordinary silicone or metal wrist products.
SAPHIRE GLASS :
- more scratch resistant, water proof, and incredibly clear compared to common acrylic glass which loses elasticity over time & and is less waterproof
Saphire glass
(front case)
(display)
(bracket)
(motherboard)
(rear)
resin strap double layer
solar panel
plastic - durable, strong, easy to push
resin
light
toughened ultra-clear glass with anti-reflective coating (so LED light is controlled)
LED light
resin strap


SOLAR POWERED
GPS
LIGHT
DEPTH METER


THE LIGHT BELOW

PRODUCT : SCUBA LIGHT

28 PAGES

Level 3 91627 (3.30)

NCEA Design and Visual Communication (DVC) 2018

AS 91627 (3.30): Initiate design ideas through exploration (4 credits)

Achievement	Achievement with Merit	Achievement with Excellence	Overall level of attainment for 91627
Initiate design ideas through exploration.	Initiate design ideas through insightful exploration.	Initiate design ideas through extensive exploration.	E
• Use starting experiences and visual communication strategies to **explore alternatives** and **variations** to **expand design thinking**. • Ideas are **re-generated** from alternatives and variations which **lead towards** design ideas.	• Use visual communication strategies and design thinking to **analyse** and **re-interpret** design ideas. • An **emergent train of thought** is identified and **informs** further design ideas.	• Use visual communication strategies and design thinking to **extend** and **transform** design ideas.	

Underlined aspects were used in making judgements.

A diagonal line indicates that a specific aspect was either not in evidence or was not shown in enough evidence to reach the appropriate level.

Pages 1 - 8 contain the starting experience of shape and form exploration from a turtle. There are a range of variations and alternatives that expand design thinking before a brief or context is introduced. Page 9 - 10 bring context and a refined focus. Pages 11 -15 re-generate earlier shapes and forms and lead into design ideas around a scuba light.

Pages 16 - 24 have ongoing analysis and re-interpretation of the re-generated design ideas with the introduction of new context details considering maps and GPS. Immersed throughout these pages are connection to human use factors, design idea functions, and performance all in relation to the context which shows insightful design thinking. The train of thought is informed while at the same time though this section the design idea is extended and transformed to an unpredictable design idea. Pages 24 - 27 summarise and bring together the design idea that has been extensively explored so it is understandable and can be seen easily. The design thinking is concise and effectively communicated.

This submission is an Achievement with Excellence. It has a focused train of thought and context throughout. The design idea is evolved through extensive exportation. The visual communication strategies used are effective and work well to tell the story of the design thinking and idea clearly. The consistent use of design marker, pen, and collage work harmoniously to demonstrate the form of the design idea throughout. A proficient ending is shown by the selection and use of formal final presentation style pages to give an overview of the extensively explored design idea.