

DCG PROJECT 2020

Exam Number : 102939
Solidworks Version : 2018



Design Research

Exam number : 102939

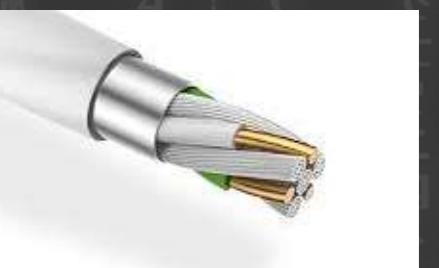
ERGONOMICS

The headset should be non-intrusive and comfortable, for gamers to be able to play for long periods of time. To meet this criteria, gaming headsets are made using light materials. They should also have tuning options for the user to set according to their needs. For example, a shooter game requires increased Bass and decreased Pitch whereas MOBA games use high Pitch and Surround Sound.



FEATURES

Gaming Headsets can have many features. The primary features are Microphones, Noise Cancellation, High Quality Sound and be Comfortable. Examples of extra features can be Vibration Mechanism, Wireless Connection and Control Switch. Vibration Mechanism makes the headset vibrate when there is an explosion or something similar, making the user feel immersed in the game. Control Switch is handy to change the volume and use the Equalizer.



SAFETY FEATURES

Gaming Headsets are made to block out most of the surrounding sound. This makes the game easier to hear and instead of increasing the volume, you can hear it on low volume as well. This prevents ear damage due to higher volumes. All wires are inside the headset, any wire coming outside are braided and covered.



SHAPE

Gaming Headsets are symmetrical in shape. They have circular ear cups to cover the entire ear and a long adjustable headband designed to according to the shape of the head. The headband is made thick so that it can support the weight of the headphones and relieve pressure on the head.



MATERIALS

Headphones are made with a wide spectrum of different materials including vinyl, foam, silicone, advanced plastics, artificial leather, textiles and more. These materials should be lightweight to reduce stress on the head and neck.

PHYSICAL FORM

Gaming Headsets are different from regular headsets as they come in wild colors, with strange angular design. They also come in different shapes of ear cups and sizes to make them look incredible. This increases the aesthetics of the headsets.

Timeline

Exam number : 102939

1910

The first truly successful set was developed in 1910 by Nathaniel Baldwin, who made them by hand in his kitchen and sold them to the United States Navy.



1958

In 1958, John C. Koss, an audiophile and jazz musician from Milwaukee, produced the first stereo headphones.



1961

Headsets with headphones and microphone combined were not on the scene until two former pilots founded Plantronics in 1961.



1968

The Koss ESP/6 were the first electrostatic headphones produced, providing less distortion and lower weight.



1997

The popularity of the internet and online gaming grew, eventually leading four people to have one discussion around a game of poker in 1997 which lead to the world's first gaming headset.

Now

Further software advancements making headsets compatible with all kinds of games and devices, along with sound technology advancements like Dolby Digital and surround sound began to encourage game developers to introduce these features. As the technology began to look more attractive and have more of a place in video games, the popularity of online gaming increased and headset technology flourished.



Design Feature Comparison

Exam number : 102939

KOTION EACH G7000



FEATURES

- **G7000** has a movable and foldable headband which can adjust according to the user's head thus providing comfort and reducing stress on the head and neck.

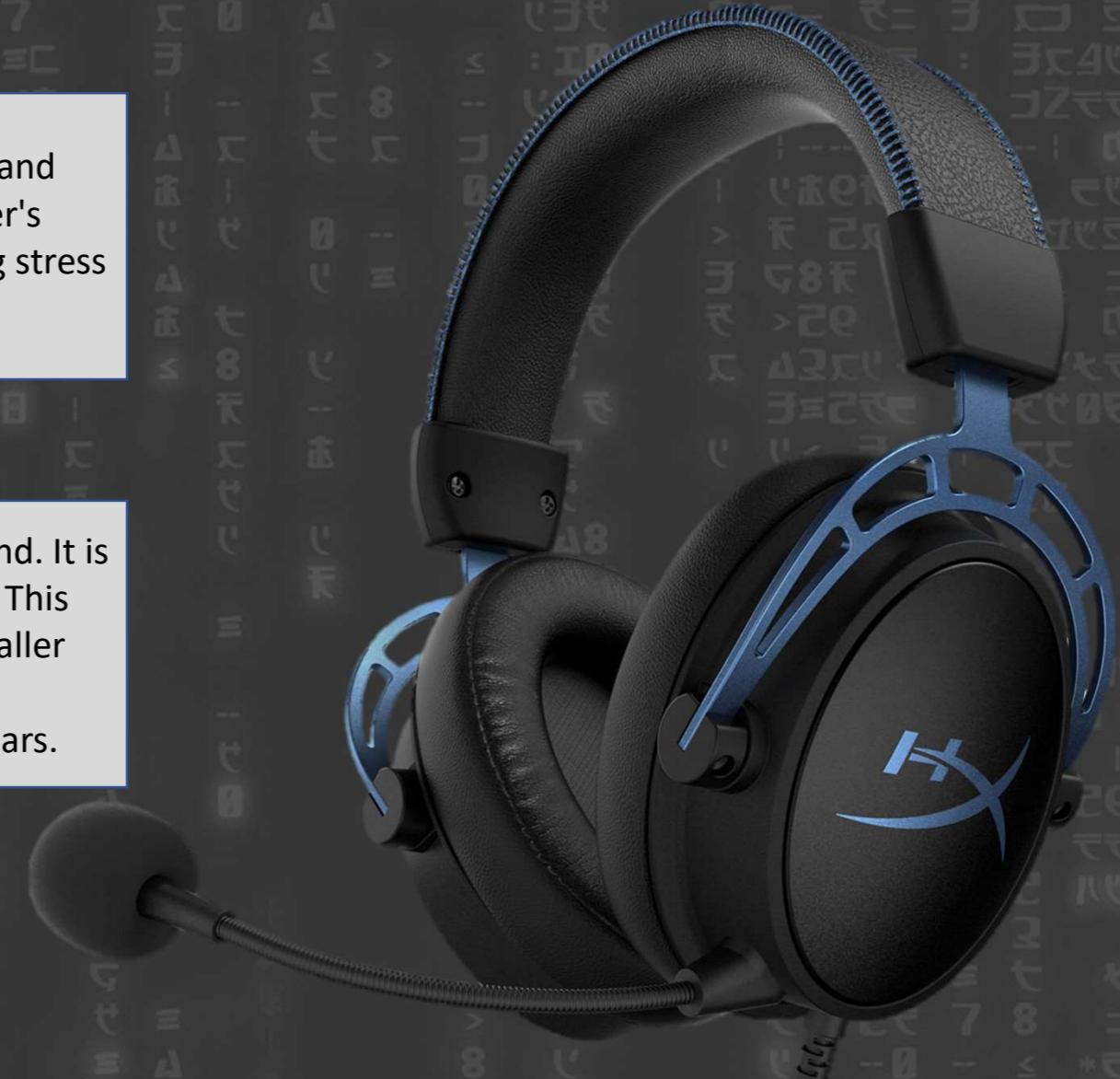
Headband

- **HyperX** does not have a movable headband. It is shaped according to a normal sized head. This causes discomfort for larger head. For smaller heads it fails to support the weight of the headset thus increasing pressure on the ears.

Earcups

- **G7000** has thinner outer cushions than **HyperX**.
- **G7000** inner cushions are very thin which causes discomfort to the ears and using it for longer periods of time causes blisters.

HYPERX CLOUD ALPHA S



- **HyperX** is oval in shape hence covers the entire ear providing complete isolation and noise reduction.
- **HyperX** inner cushions are thick providing comfort thus suitable for longer uses.

Design Feature Comparison

Exam number : 102939

KOTION EACH G7000



FEATURES

- **G7000** doesn't have moveable mic hence picks up sound over a wider area but this increases background noise being picked up.
- **G7000** doesn't have a removable mic.

Microphone

- **HyperX** has a movable mic hence can be brought closer to the mouth and have lower background noises.
- **HyperX** has a removable mic which makes it easier to carry around.

Extra Features

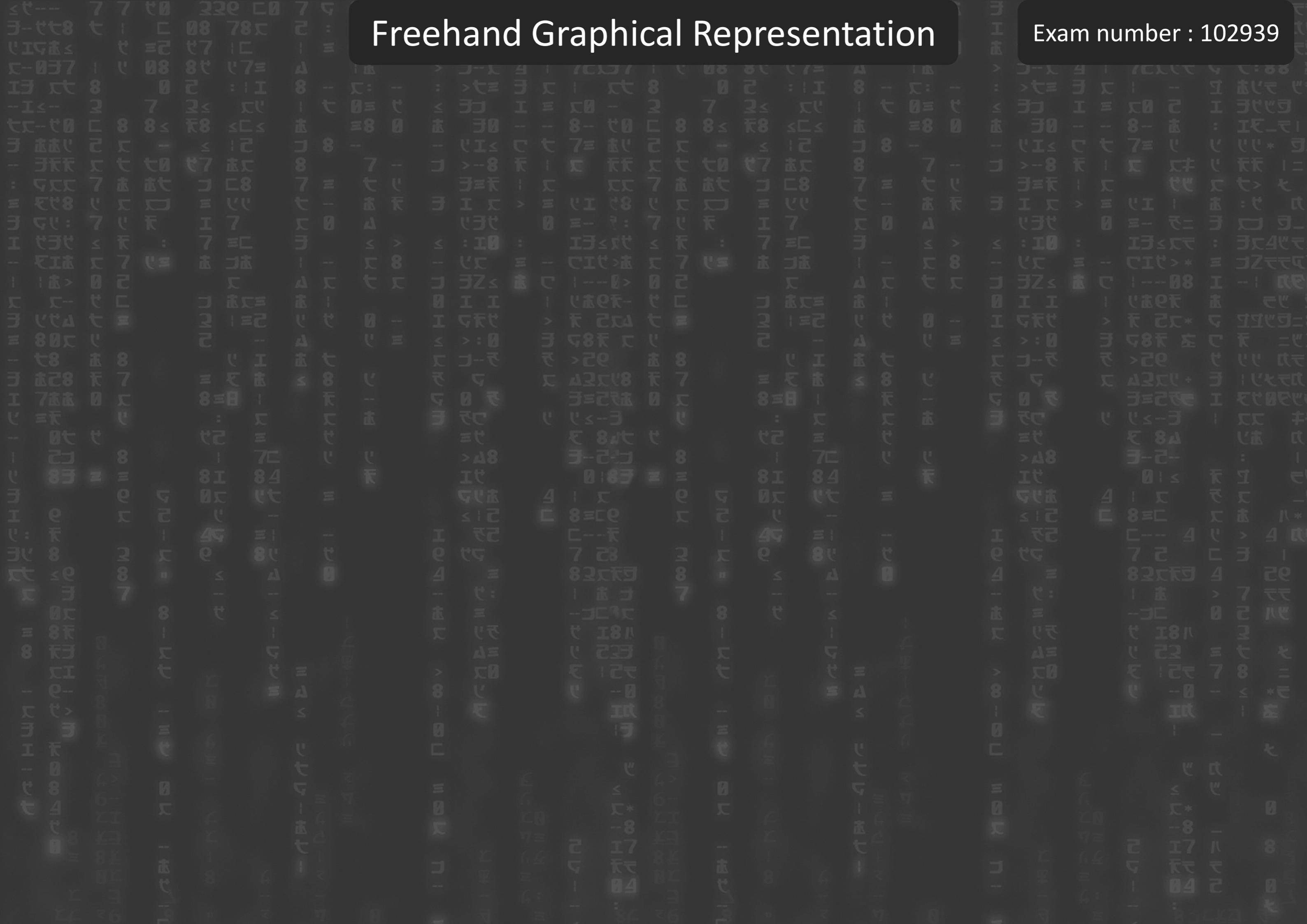
- Volume Controller on the Headphones
- Extra sensors vibration mode
- Braided Cable

- Bass adjustment sliders
- Braided cable
- Advanced audio control mixer

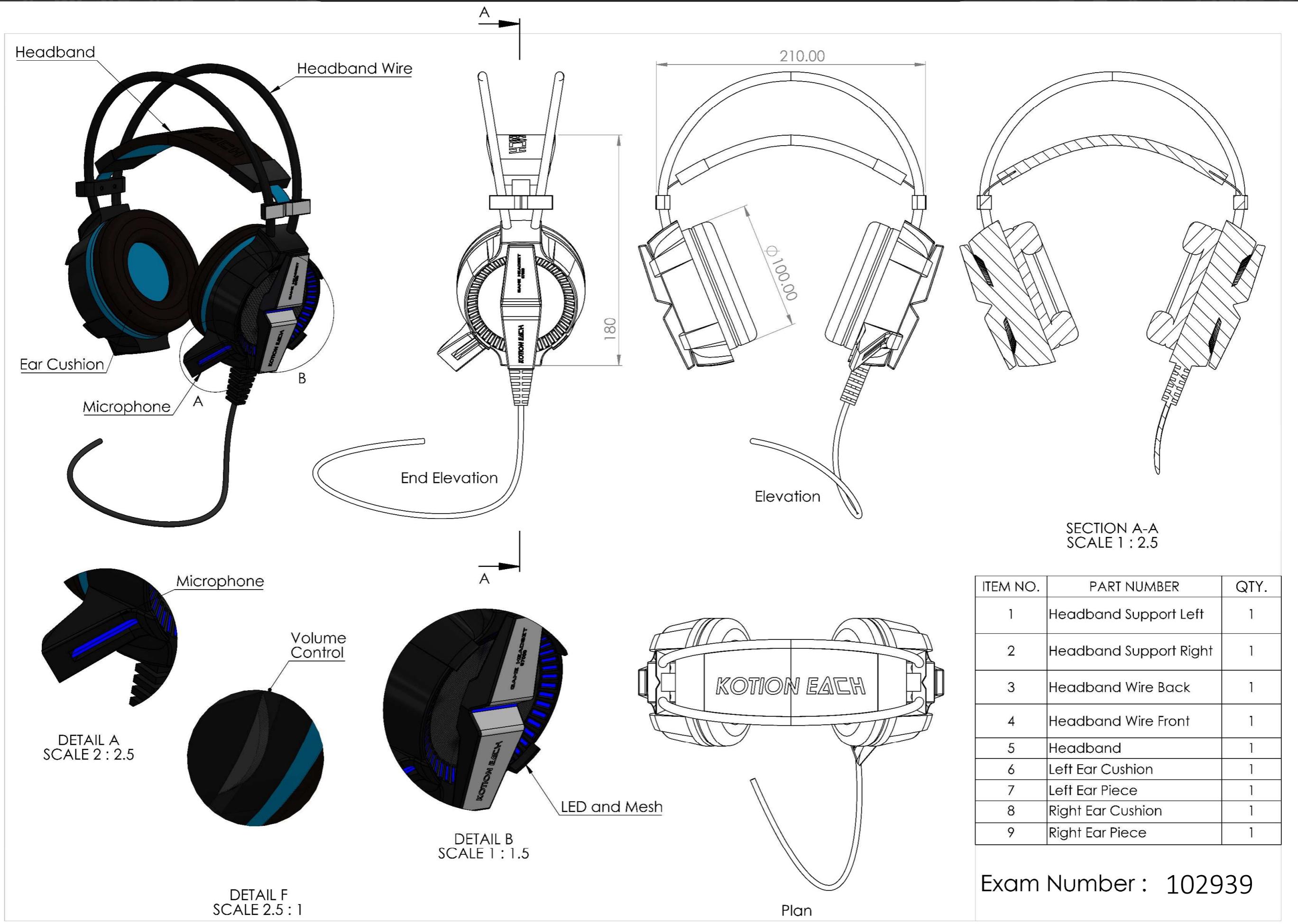
HYPERX CLOUD ALPHA S



Freehand Graphical Representation



Hardcopy output from Solidworks



Exploded Views

Exam number : 102939

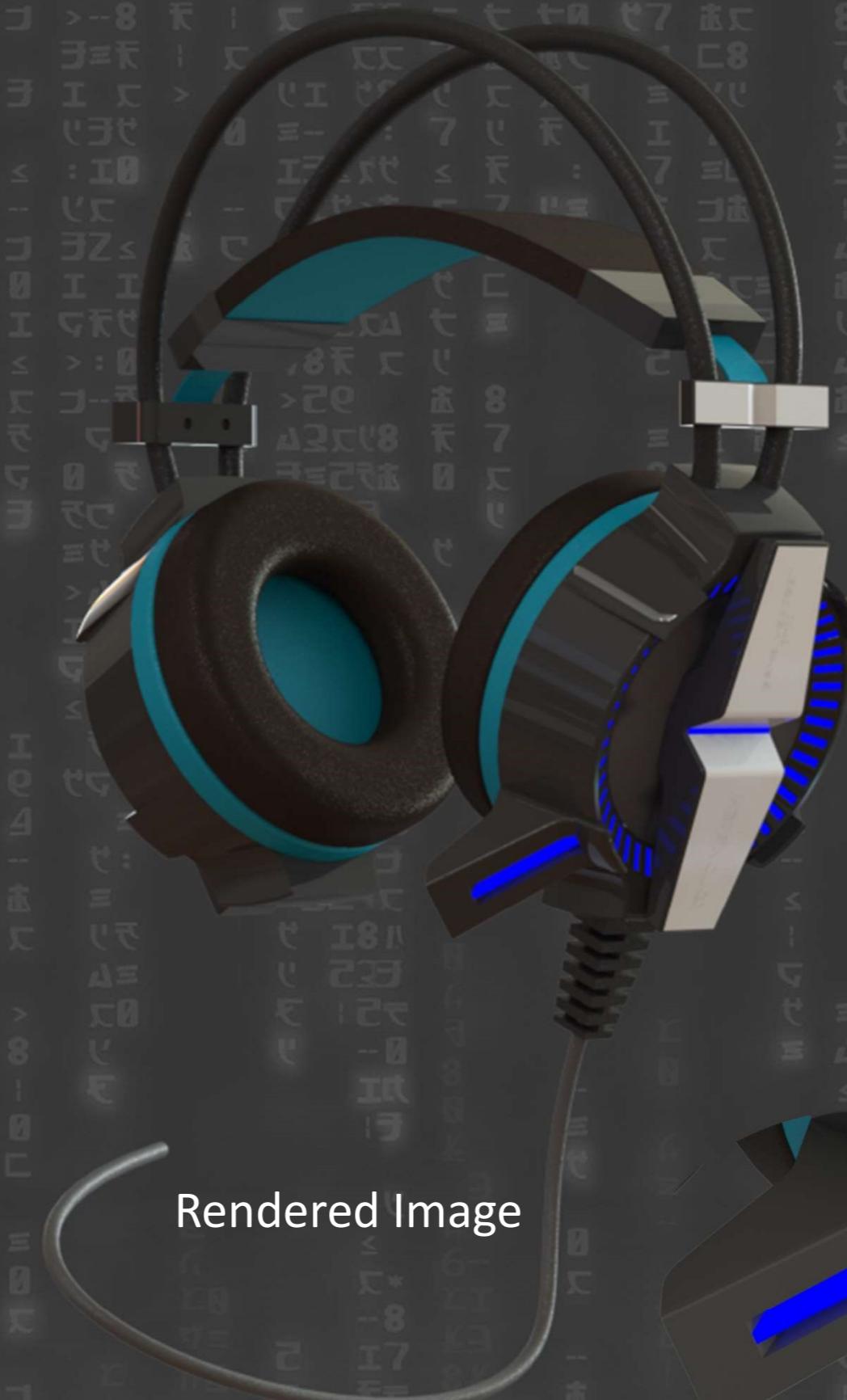


Photorealistic Representation

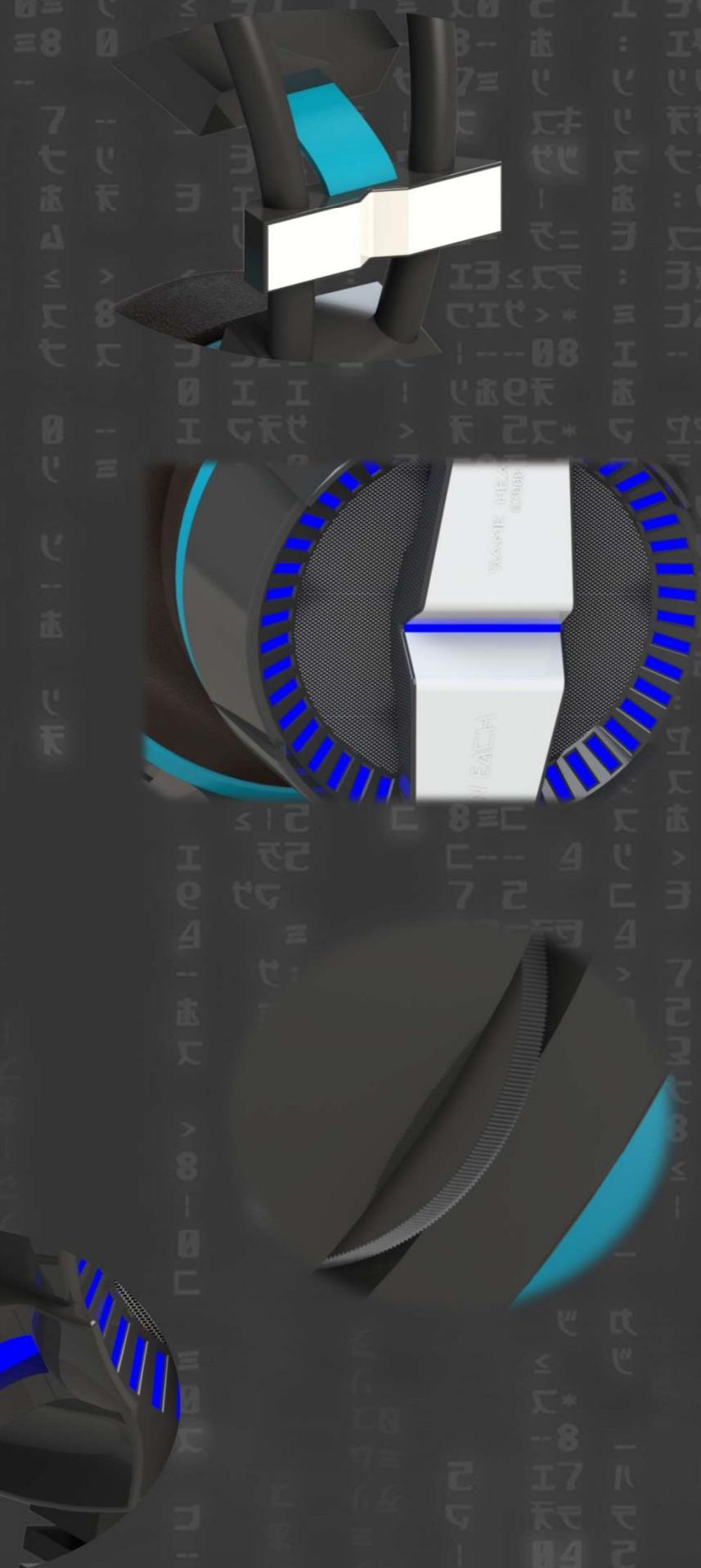
Exam number : 102939



Actual Image



Rendered Image



Graphical exploration of design solutions

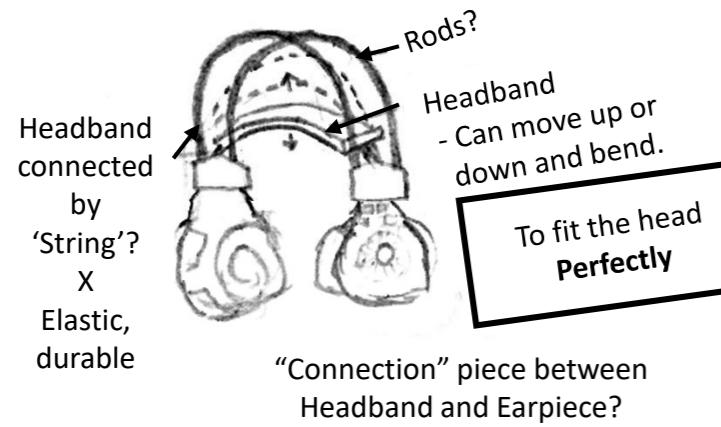
Exam number : 102939

Basic Headset

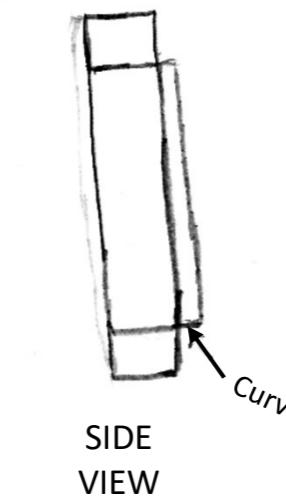


Comfort

Alternate Headband
-Adjustable

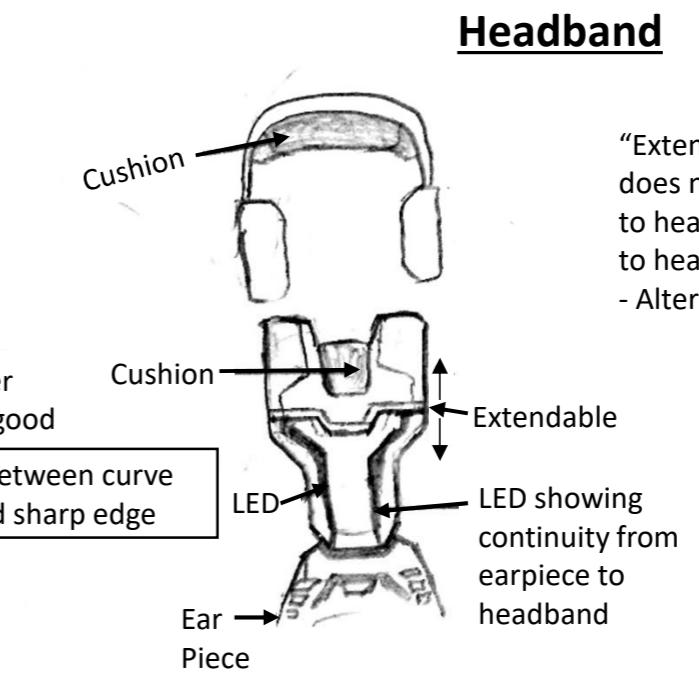
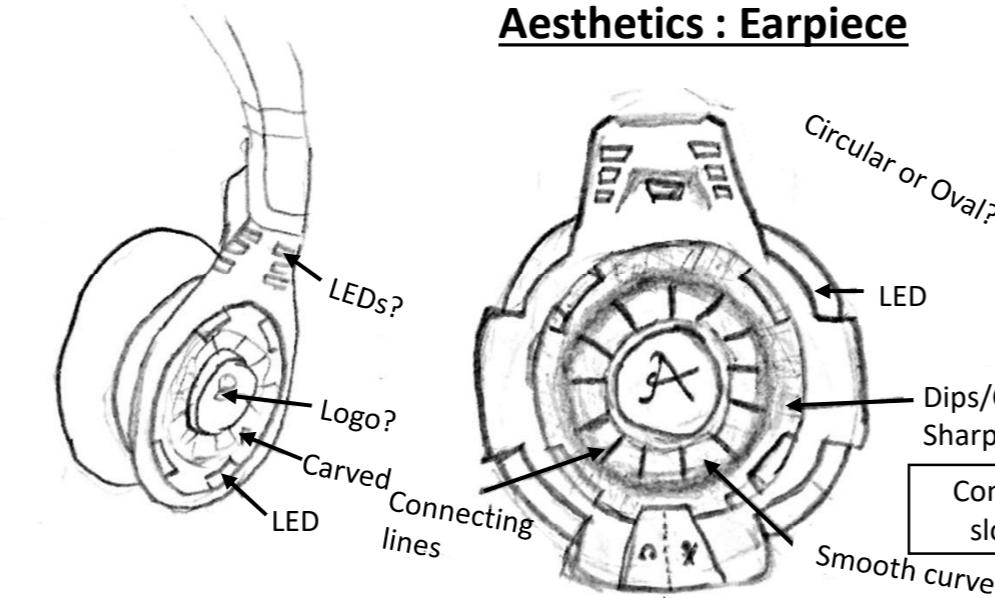


BOTTOM VIEW



SIDE
VIEW

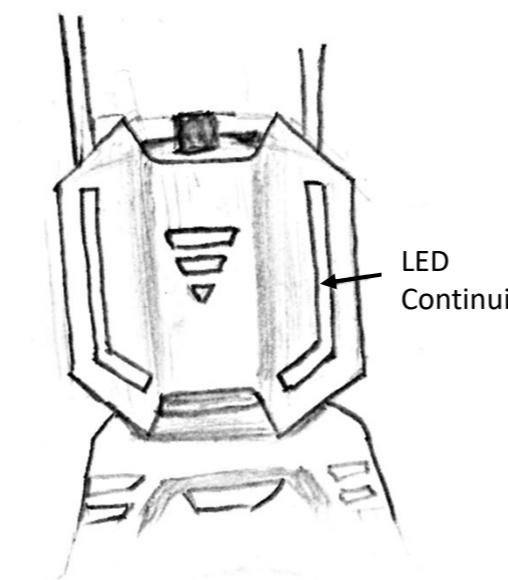
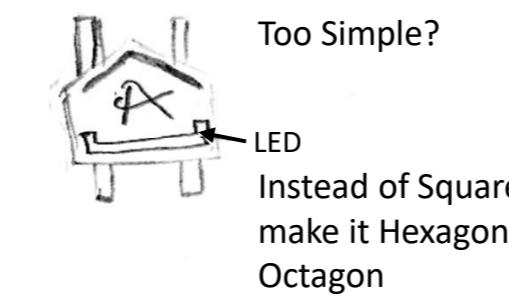
Aesthetics : Earpiece



Headband

"Extendable" Headband does not change according to head shape but according to head height.
- Alternate Headband?

Connecting Piece

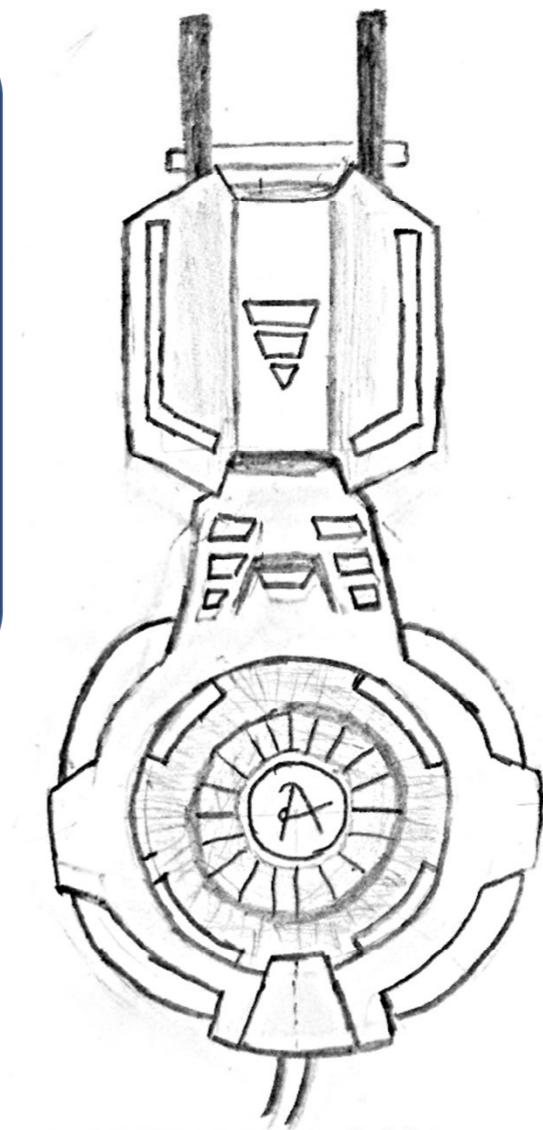


Inspiration : Transformers

Target Market

Gamers like Headsets which are very **Aesthetic** but also **Comfortable**. This Headset is based on LEDs & unconventional shapes and design to boost aesthetics with ear comfort in mind.

Complete Side View

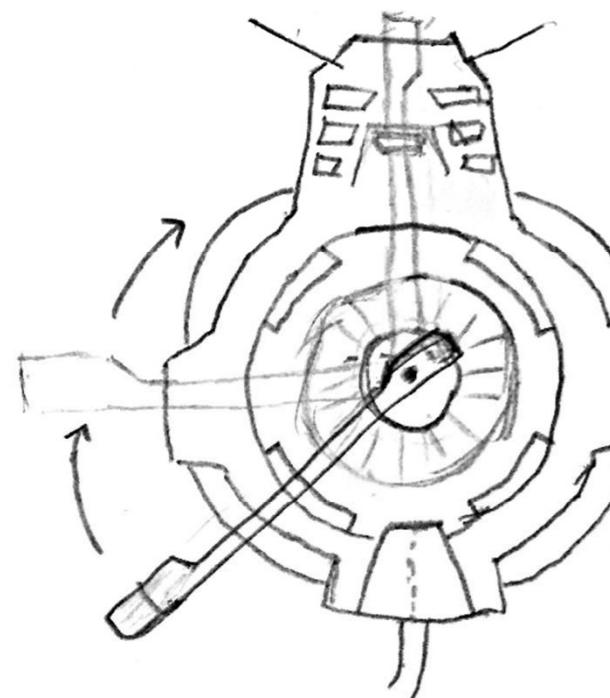


Graphical exploration of design solutions

Exam number : 102939

Features

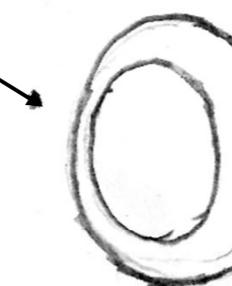
Movable Microphone



Removable
(Swap out if torn)

Thick Leathered
Cushion
- for isolation
(no background noise)

Ear Cushions



Being a hardcore gamer myself most headset do not have thick cushion on the inside.
Ears are sensitive and they start hurting when gaming for longer periods of time due to thinner inner cushions.

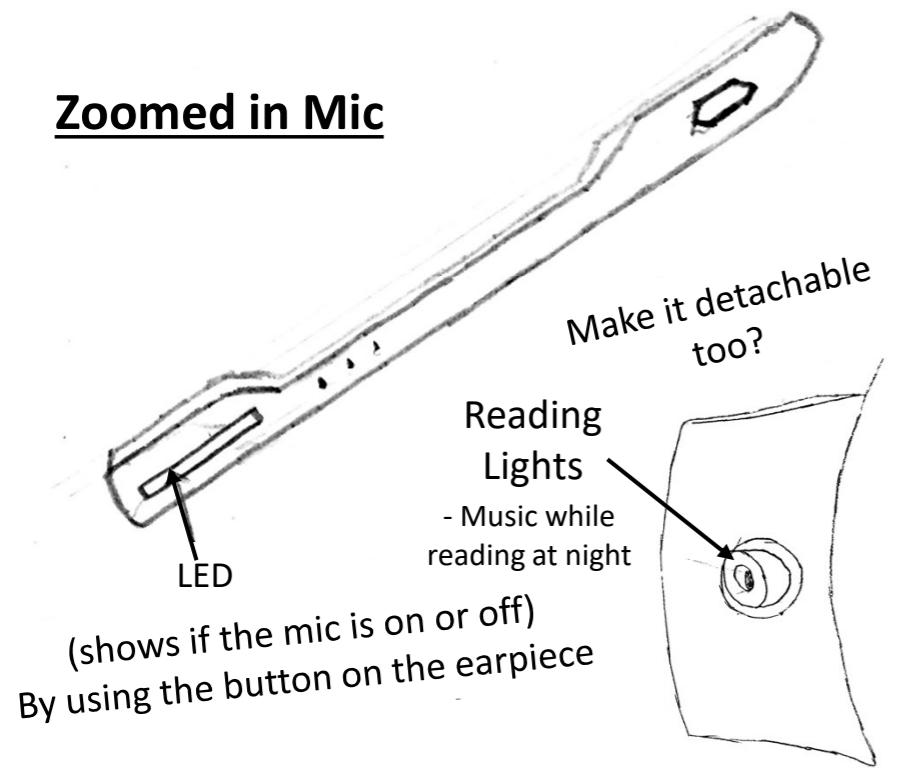
Thick inner
Cushions
Made of cloth
- Breathable
- Reduce sweat accumulation
- Keeps the ears from damaging

Volume Control Switches

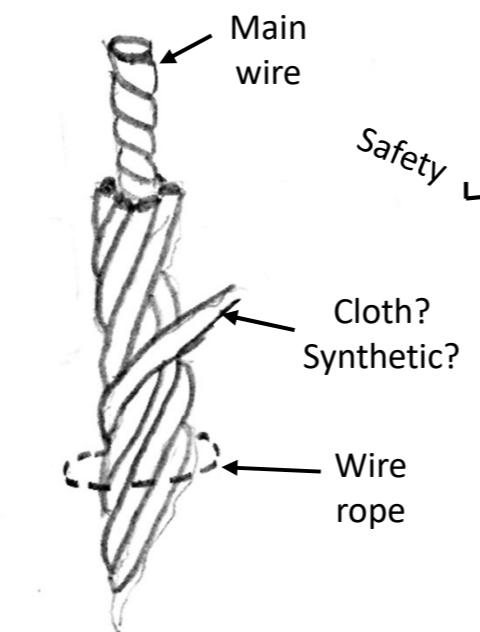


+2 switches
on the
earpiece

Zoomed in Mic

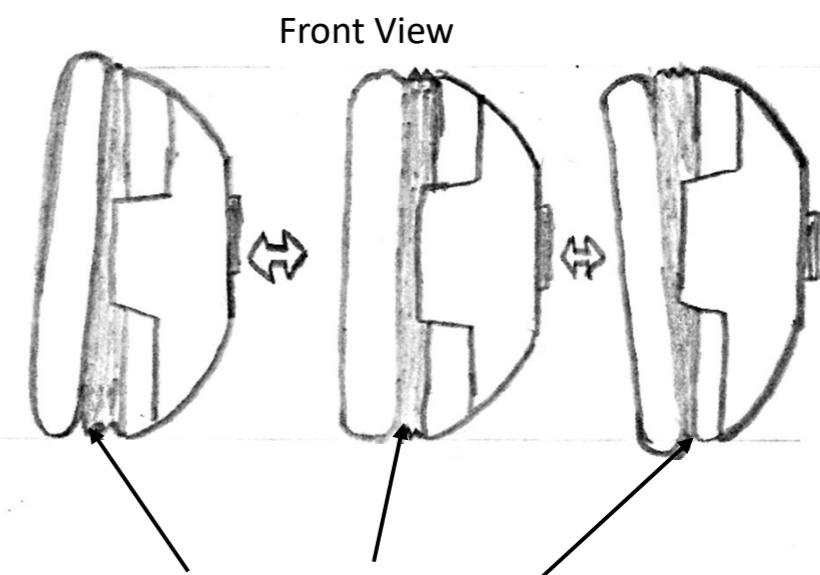


Braided Cable



- Keeps wires safe
- Keeps user safe from shocks from naked wires.

Movable Earcups

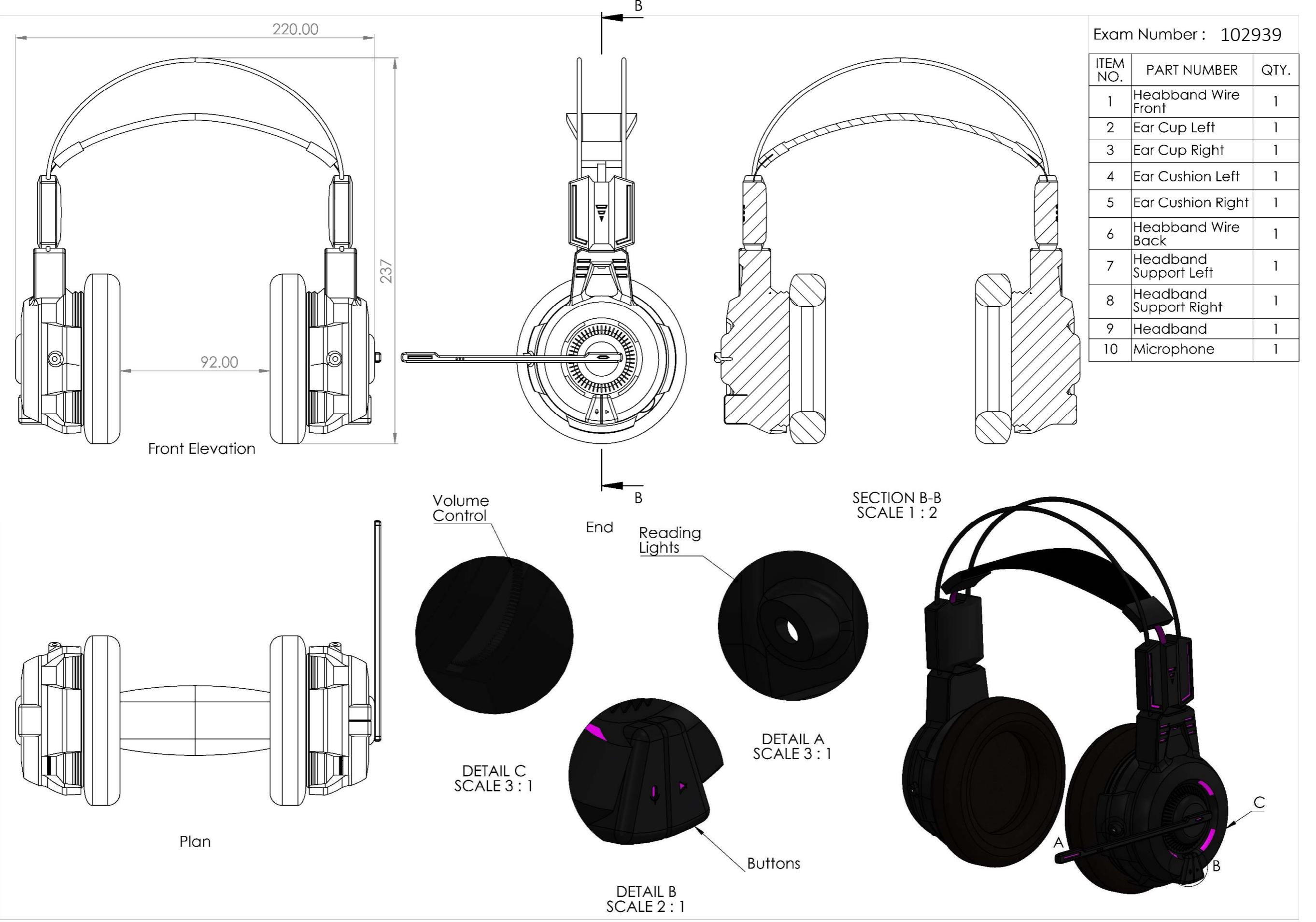


- Front View
- Spongy Cushion
- To fit all head size and shape
 - Extra comfort for the ears.

Presentation of Concept Design

Exam number : 102939

Hardcopy output from Solidworks



Hardcopy output from Solidworks

Exam number : 102939



Hardcopy output from Solidworks

Exam number : 102939

