



# DCG DESIGN PROJECT

EXAM NO: 124689

The history of gaming headsets does not date back a long time however the basic technologies incorporated into a gaming headset were invented a long time ago. For example:

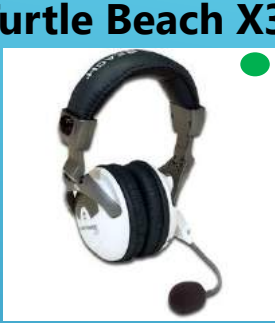
Design Research  
Output 1



- =Primary Research/Photo I took
- =Secondary Research/Photo someone else took

History of gaming headsets:

A. Graham Bell Telephone Nathaniel Baldwin Headphone



1876

1910

1937

2005

2007

2018

Alexander Graham Bell invented the first telephone and made the first call on March 10, 1876. This was revolutionary because you could talk to another person in a different location and communicate with them through this telephone which led to many inventions like this.

The first truly successful set of headphones was developed in 1910 by Nathaniel Baldwin, a Utah inventor which were hand made in his kitchen.

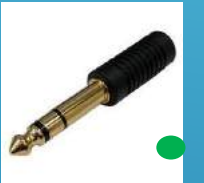
The DT-48's from Beyerdynamic (A German company which is still a popular company to this day) became the first dynamic headphones to hit the market. Dynamic headphones use a driver that is a miniature speaker, this was the first of its kind whereas before the armature type of headphone uses a driver such as is used in hearing aids.

Turtle Beach released the very first console gaming headset the X51. This was invented in conjunction with the latest gaming consoles such as the PlayStation and the Xbox so the user could plug the headset into the associated gaming controller and experience audio from a headset media and allow the user to be able to communicate with other online players through the microphone. Since then Turtle Beach has led the industry by designing a wide range of gaming headsets to this day.

The first truly wireless gaming headset was made by Turtle Beach which allowed the user to connect the gaming headset to the console wirelessly over a Bluetooth connection without being tethered to the controller by wire.

In recent years companies such as Razer make minor upgrades to their previous gaming headset additions with unique features such as haptic feedback which features in this headset only along with a customizable Razer logo on the earcups with an app to customize the colour of the logo with the built in LED lights to give it a more gamer aesthetic. Haptic feedback known as Razer HyperSense is a technology that sends out a vibration that flows accurately from left to right depending on where the audio cues are coming from in game and gives you a better immersive experience playing whichever game.

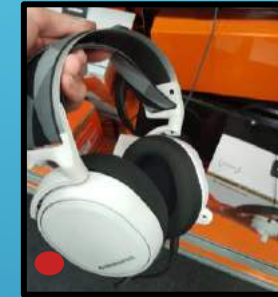
Materials must be taken into account when designing a gaming headset because it affects the efficiency and aesthetics of a headset. Most gaming headsets contain components made of PVC as the main body, rubber for the cable, memory foam as a cushion and artificial leather as a headband. These range of materials are used because they are lightweight so it won't weigh down on your head while gaming to maximise comfort. The headphone jack material is made of an alloy of zinc and copper called brass because it is a good conductor for electricity.



## DESIGN AND RESEARCH- Output 1

I have used the **Turtle Beach Ear Force Recon 50P** which is a modern day headset which was released in 17 September 2015.

- =Primary Research/Photo I took
- =Secondary Research/Photo someone else took



The main colours of headsets are **black**, **grey**, **white** because they are basic, low profile colours. **Green** is commonly used for **Xbox** intended headsets and **Blue** is commonly used for **PlayStation** intended headsets.



## Materials:

## Colours:

Modern day gaming headsets include a microphone that can be pulled out or retracted, cheaper headsets generally have the mic built into the headset, rotating earcups that can turn 90 degrees to make it more portable so it can fold up into a more compact form. Another feature in a modern day headset are size adjusters that slide up and down to increase/decrease the length of the headband to fit your head size, a mute/unmute button to stop or turn on your voice from being heard in the voice chat channel and a volume adjuster to increase/decrease game volume and chat volume.

## Features:



## Shape:



A headset's shape mainly impacts on its comfort. Headset designs mainly incorporate the same general shape. The majority of the headsets include bevelled edges with no sharp edges in contact with your head to ensure maximum comfort, a long headband that wraps around the head and the earcups should be angled inwards so that the earcups are clamped comfortably onto your head to provide a secure fit for a range of different head sizes.



# Output 2- Compare and Contrast



**Ear force  
Recon 50P**

# VS

**AW988**



**ALIENWARE**



## Current Pricing:

€40

### Overall Assessment:

The Ear Force Recon 50P is a headset that is reliable, comfortable and has great sound. One problem with this headset is that it is not a one part build which can be unreliable because sound issues can occur when a cable becomes faulty after over-use of the headset which make wireless headsets like the AW988 more reliable. The pricing for this standard of headset is exceptional and Turtle Beach is known for having good prices for good headsets. It is also quite a large headset compared to the AW988 which is good because a more secure and comfortable fit can have the advantage over the AW988.

### Overall Assessment:

From build quality to sound quality, the AW988 is one of the best headsets. Underneath the soft-touch plastic on the headband is a wide, metal band that feels very durable because the whole headset is a one part build unlike the Recon 50P. This headset is the perfect headset for people who spend hour long sessions gaming and want to feel comfortable and immersed in the game whilst playing. One drawback of this headset is the price point because €211.17 is an expensive price compared to the Recon 50P which is only €40.

## Current Pricing:

€211.17

## Main Dimensions:

22.2 x 10 x 24.2 cm

## Main Dimensions:

19 x 9.3 x 19.3 cm

### Features & Specs:

- Convenient in-line controls- Control Mute/Unmute and master volume.
- High Sensitivity Mic- Picks up your voice loud and clear, remove it when you're watching movies or listening to music.
- Multiplatform compatibility- Works with phones that have a 3.5mm jack and can be connected by wire and supports XBOX, PS4, PC but cannot be connected wirelessly unlike the AW988.
- Doesn't need to be charged because it is a wired headset.

### Features & Specs:

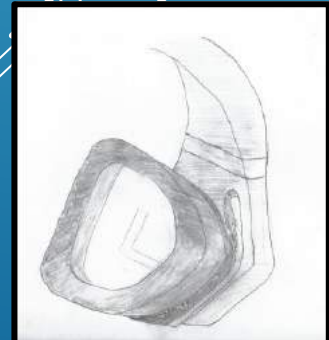
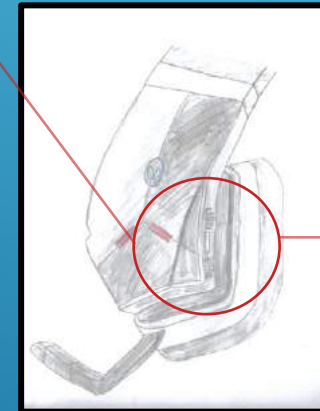
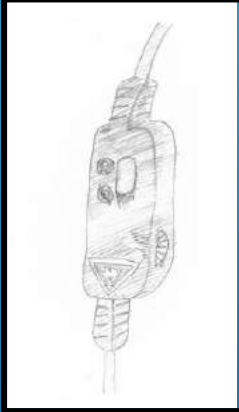
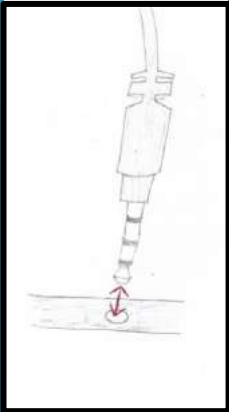
- Controls like Mute/Unmute/Volume are located along the back of the headset for ease of access.
- Very convenient mic compared to the Recon 50P because you can swivel the mic back into the headset without being in the way.
- Is a wireless gaming headset and can connect a cable from the headset to anything with a 3.5mm headphone jack for example: PS4, XBOX, Nintendo Switch, PC and mobile.
- Has a 1200mAh battery and when fully charged it can run up to 15hrs of playtime.
- Has RGB lights on the headset unlike the Recon 50P which gives it a better aesthetic look for gaming but is only a cosmetic appearance so it doesn't affect anything while gaming.

### Physical Form & Design:

- The Ear force Recon 50P was designed comfortable (Leather and foam ear pads) and lightweight (12.8 ounces compared to the 13.4 ounces AW988) so you can play for continuous hours.
- Has a curvy design that covers over your ears with 40mm speakers.
- Lightweight design with crystal-clear communication and iconic Alienware style.

### Physical form & Design:

- Lightweight comfortable design that can allow for hours of gaming on end.
- The padding on the ear cups is a nicely thick memory foam that provides an exceedingly comfortable fit against your head. The ear cups are made of a soft microfiber which keeps your ears cool.
- The microphone has an extendable high quality mic that lets you tuck it up and out of the way when you're gaming solo or listening to music.



# Output 2- Compare and Contrast



**Ear force  
Recon 50P**

**VS**

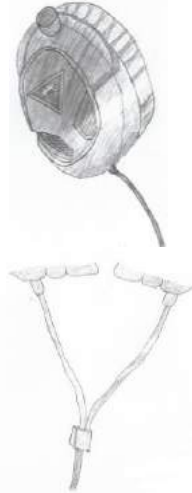


**AW988**

**ALIENWARE**

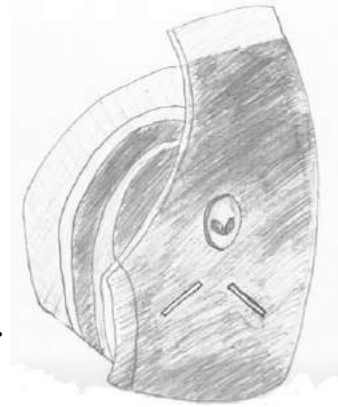
**Earcup:**

- Can turn the ear cups 90 degrees to use as a portable function
- Both Ear cups are tethered to a wired cable to merge into one cable for a wired connection only where you can access the controls.
- This connection can allow it to connect to all things with a 3.5mm headphone jack but cannot connect as a wireless Bluetooth connection.



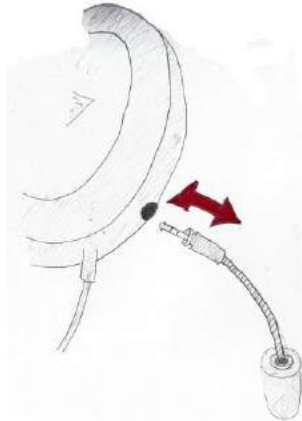
**Earcup:**

- Can also turn the earcups 90 degrees like the Recon 50P.
- Has a detachable cable if you need to connect the ear cups to a 3.5mm headphone jack but can go without the cable if the headset can connect to the device through a Bluetooth connection unlike the Recon 50P.
- LED lights located on the Alienware logo and LED strips unlike the Recon 50P.



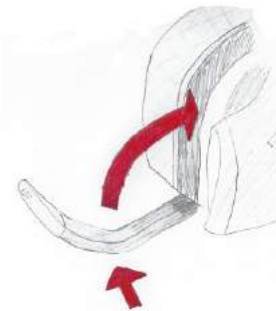
**Microphone:**

- Can remove and insert in the microphone out of the headset which is useful for when listening to music or not talking to others.
- Can adjust the microphone to a comfortable position unlike the AW988 for when gaming with others in a public/ private voice chat channel.

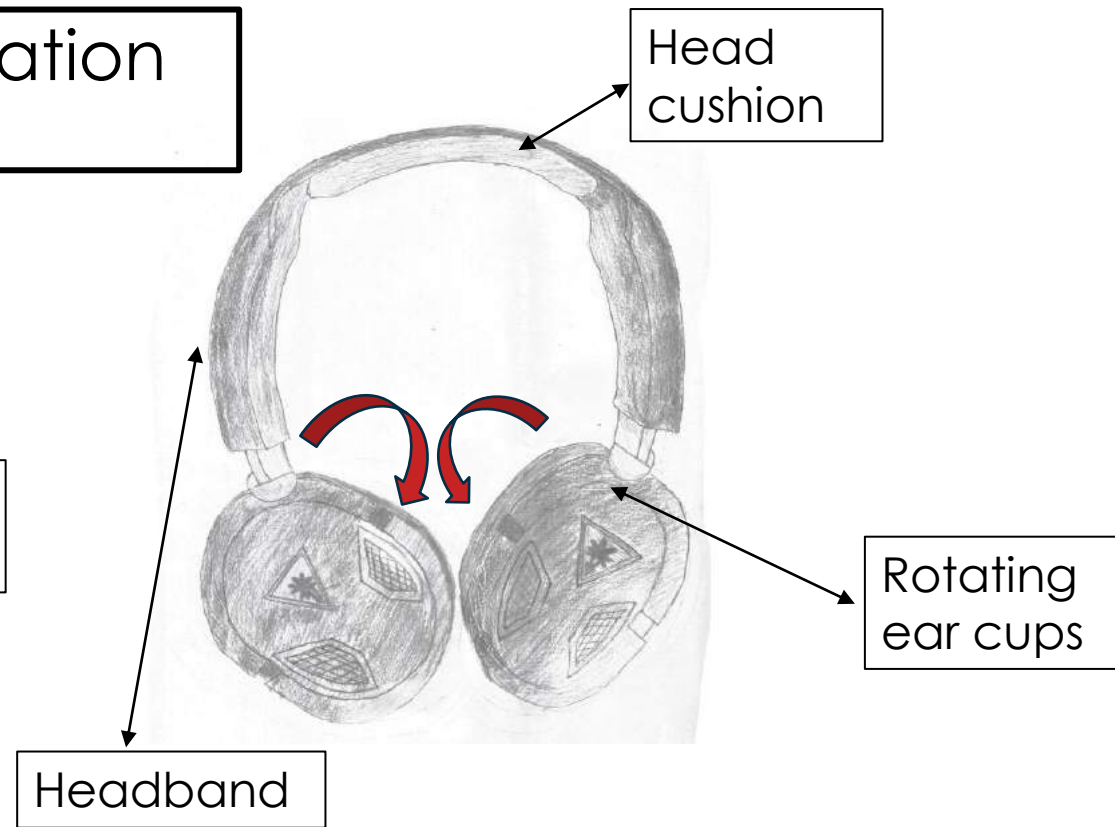
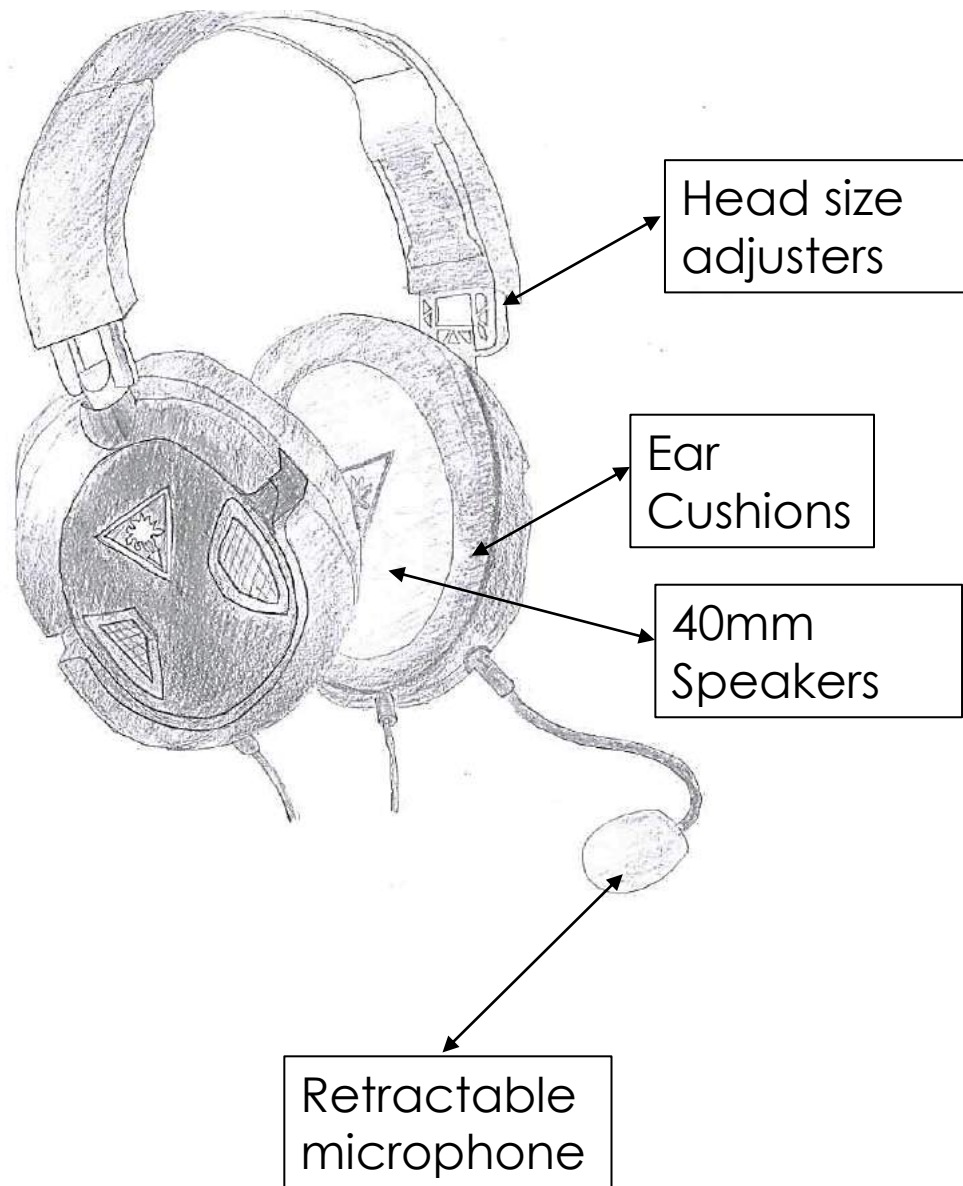


**Microphone:**

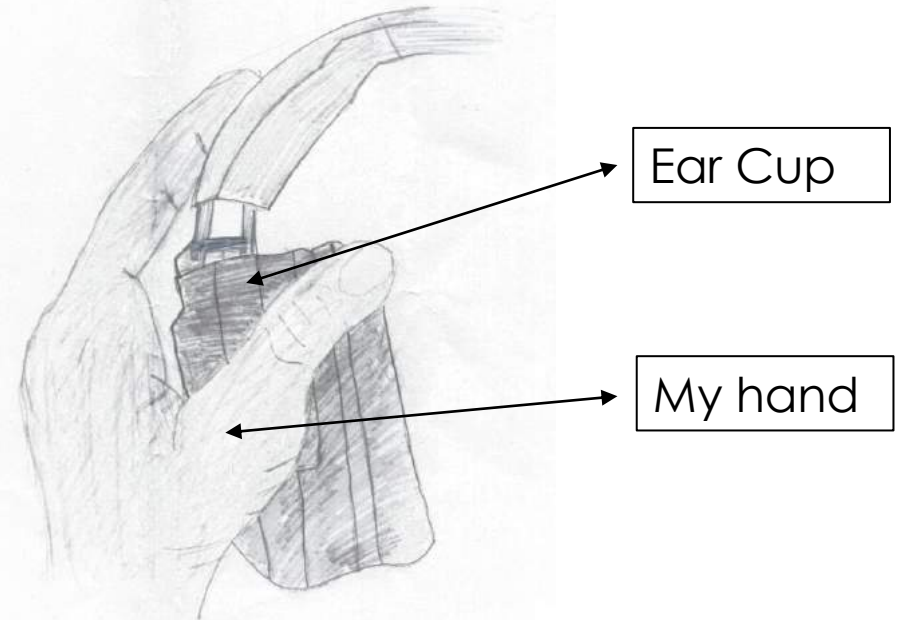
- Can swing the microphone in and out the headset for ease of access unlike the Recon 50P.
- The Microphone is only stuck in one position, cannot bend it into another position but it is already in a comfortable position.



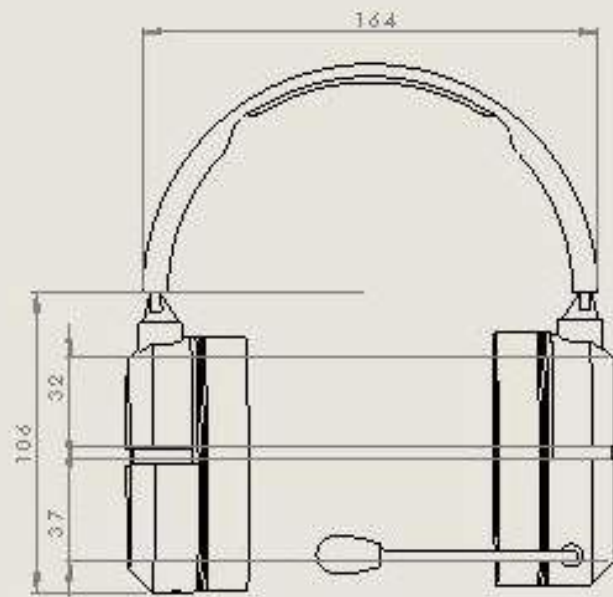
# Freehand Graphical Representation Output 3



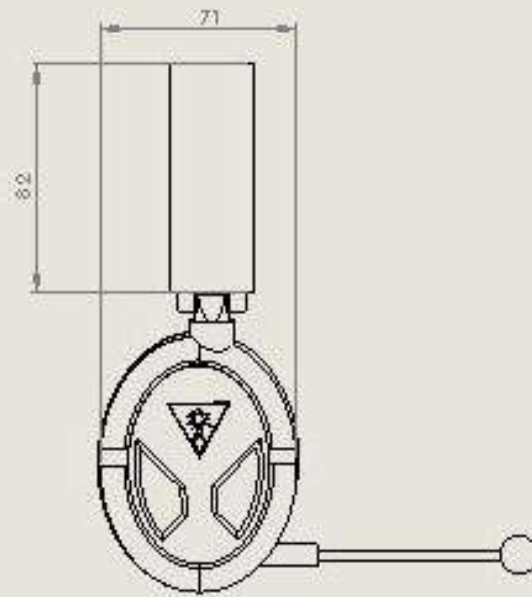
Size Comparison:







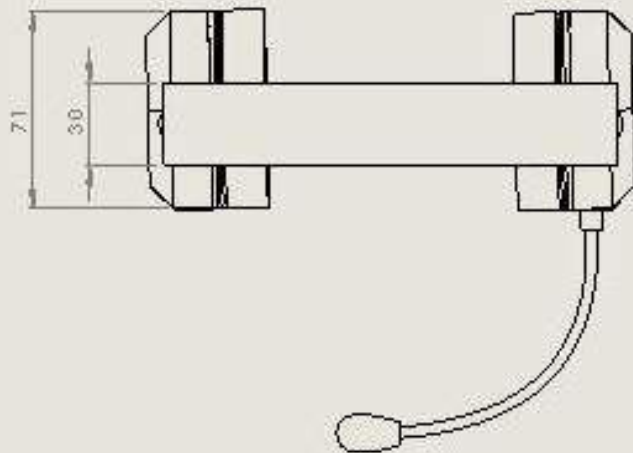
**Elevation**



**End View**



**Orthographic View**

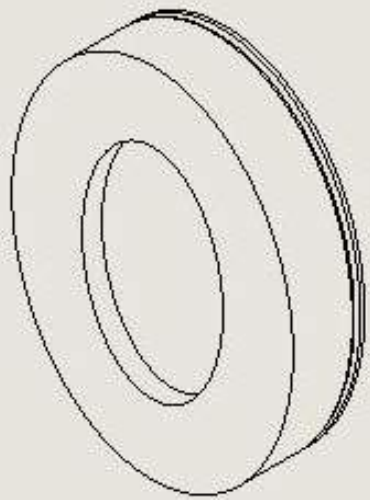


**Plan**

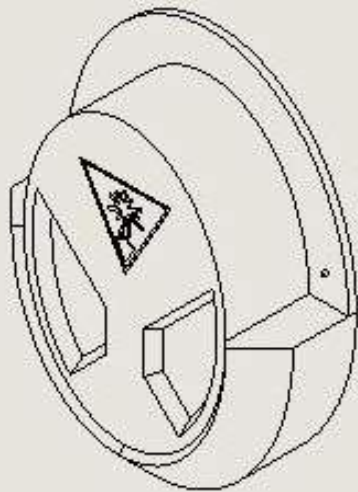


**Wire**

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	SCALE: 1/8		UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MM
DATE:			



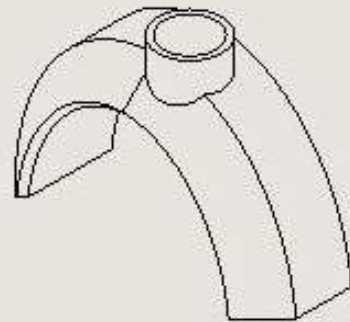
Ear Cushion



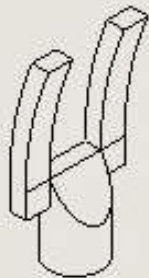
Ear Cup



Headband



Ear Cup Connector



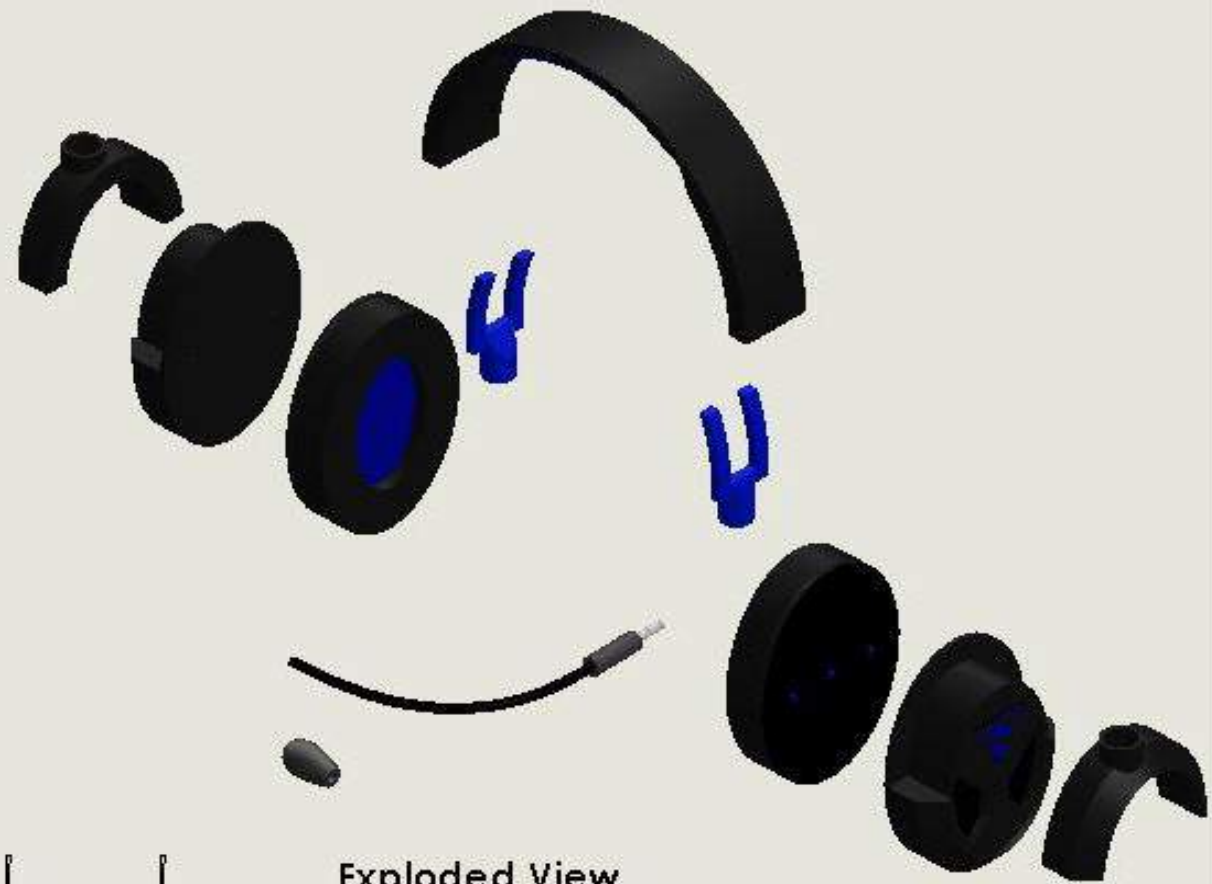
Size Adjuster



Mic



Wire

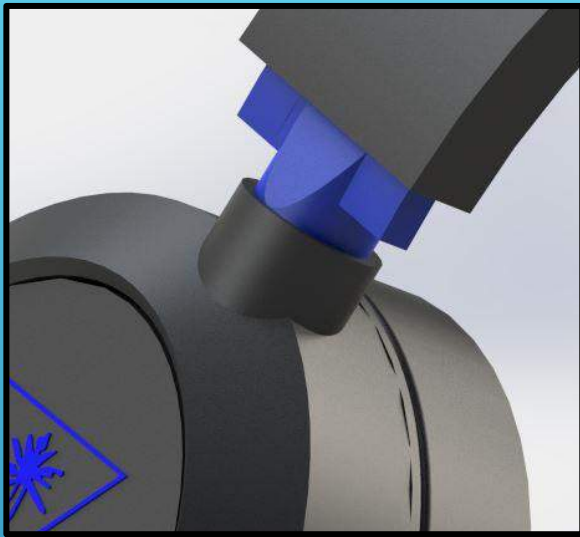


Exploded View

DESIGN & COMMUNICATION GRAPHICS			
TITLE: Ear Cup Part 2			
DRAWN BY:		SIZE A3	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN mm
SCALE: 1:5	DATE:		



# Photorealistic Representation Output 6



# Output 7: Modification

## Inspiration:

Using this gaming headset, problems/things that could be improved while gaming I discovered that:

- The remote that is along the cable could be located somewhere else because when I'm sat down wearing the headset, the volume would change every now and then because the volume mixer is located along the side of the remote.
- The comfort of wearing the headset could be improved because there is a lack of enough cushion underneath the headband, which can be annoying after using the headset after a long time.
- I picked this particular headset because it is an overall good headset with a good mic, good sound quality and is a quality product.

**Headset with built in screen:**

## Target Market:

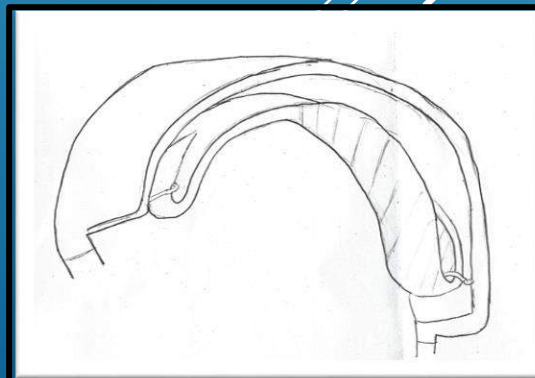
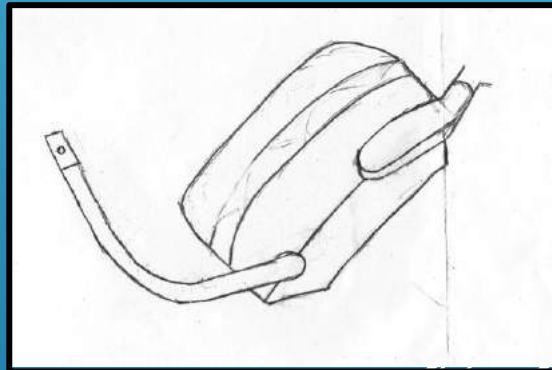
The target market that this gaming headset would be aimed at is people who are interested in technology and would like to try new unique ideas for headsets, people who would use headsets on a daily basis and would like a place on the headset where all the needs of a headset are in one place. It is also targeted at people who are dedicated to environmentally friendly products.

## Initial Design Ideas:

**Idea 1:** My initial idea was to make the headset an overwatch themed headset. I wanted to incorporate the design to be overwatch themed because the headset colour/design is a usual headset design and I thought it would be interesting for a headset to be themed on a game. I felt this was too similar to the Razer Kraken Overwatch headset and decided to not go through with it.



**Idea 2:** My second idea was to make the headset more comfortable because there isn't much cushion on the headband, so I decided to have the idea of putting a ski goggle headband underneath for comfort, but I didn't go ahead with it because of the similarity of SteelSeries headbands with my idea.



## Moodboard



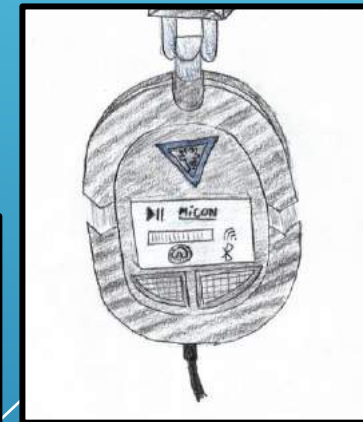
Aimed at Gamers/Tech Heads



Colour's



Eco-Friendly People



**Idea 3:** My third idea was to aim the gaming headsets at people who are Tech Heads/Gamers/Environmentally friendly people. To target environmentally friendly people I thought it would be interesting to make the majority of the headset out of recyclable/ environmentally friendly plastics while still being a high-quality product. I thought that it would also be interesting to have a detachable remote/ screen built in the headset where all needs are in one place. I decided to go ahead with this because I think it would be a new unique revolutionary idea for future headsets and current headsets.



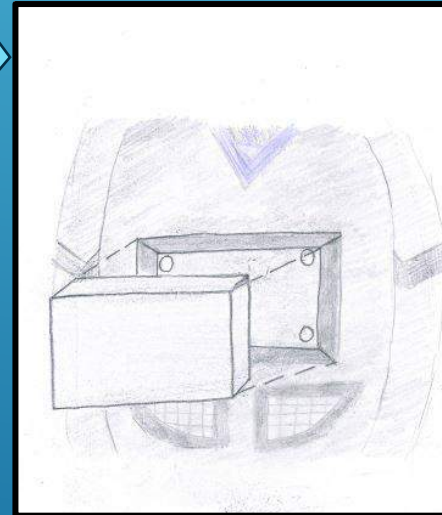
# Output 7: Modification

## Development of ideas:

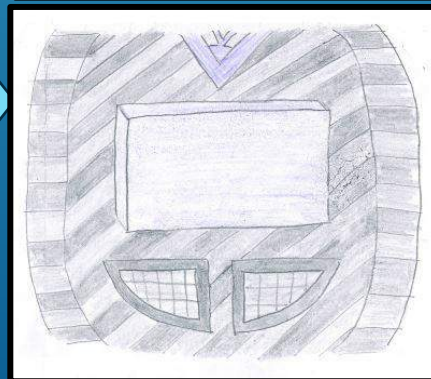
My original plan was to have a built-in screen on the headset where all needs of a headset were in one place.



I decided to modify the built-in screen by making it a detachable screen/remote. It can be reconnected to the headset by magnets on the back of the screen and on the inside of the headset. On the screen you can access Mic On/OFF, Play/Pause Music, Sound, Volume, Wi-Fi, Bluetooth and to turn OFF/ON the headset.. When the screen is detached the remote/screen still affects the headset when you change these settings. I also changed the location where the grills of the original design because the screen is located where they were initially. Other earcup is left normal because there is no need for 2 remotes/screens.

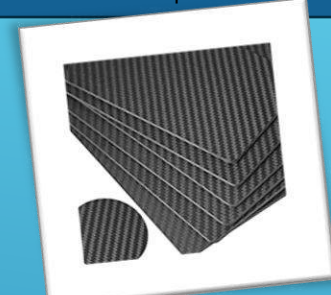


I also wanted the headset to be environmentally friendly because technology products can be dangerous to the environment because of the harsh materials needed. I decided to replace majority of the outside build out of carbon fiber which is a high-quality material while being environmentally friendly and replaced the rest of the build out of a recycled plastic called HDPE.



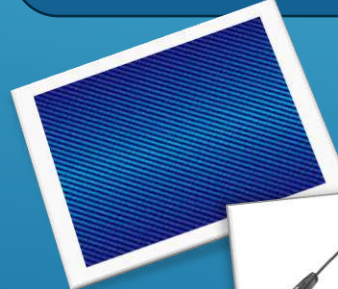
## Environmental Sustainability:

Carbon fiber is an environmentally friendly material. I chose to make the majority of the headset outside build out of carbon fiber because it is a high quality material while being an environmentally friendly material. The rest of the headset I decided to make out of recycled plastics called HDPE-(High Density-Polyethylene) which is usually used for shampoo bottles.



## Aesthetics:

Generally I kept the same colouring that turtle beach did with the original design which are the blue and black colours which resemble the PlayStation 4 colouring and I added white colouring for a bit of contrast. The carbon fiber plastic is black and white which I made the majority of the headset out of and the HDPE is generally the blue colouring of the headset and the plastic that surrounds the screen/remote when it is attached to the screen.

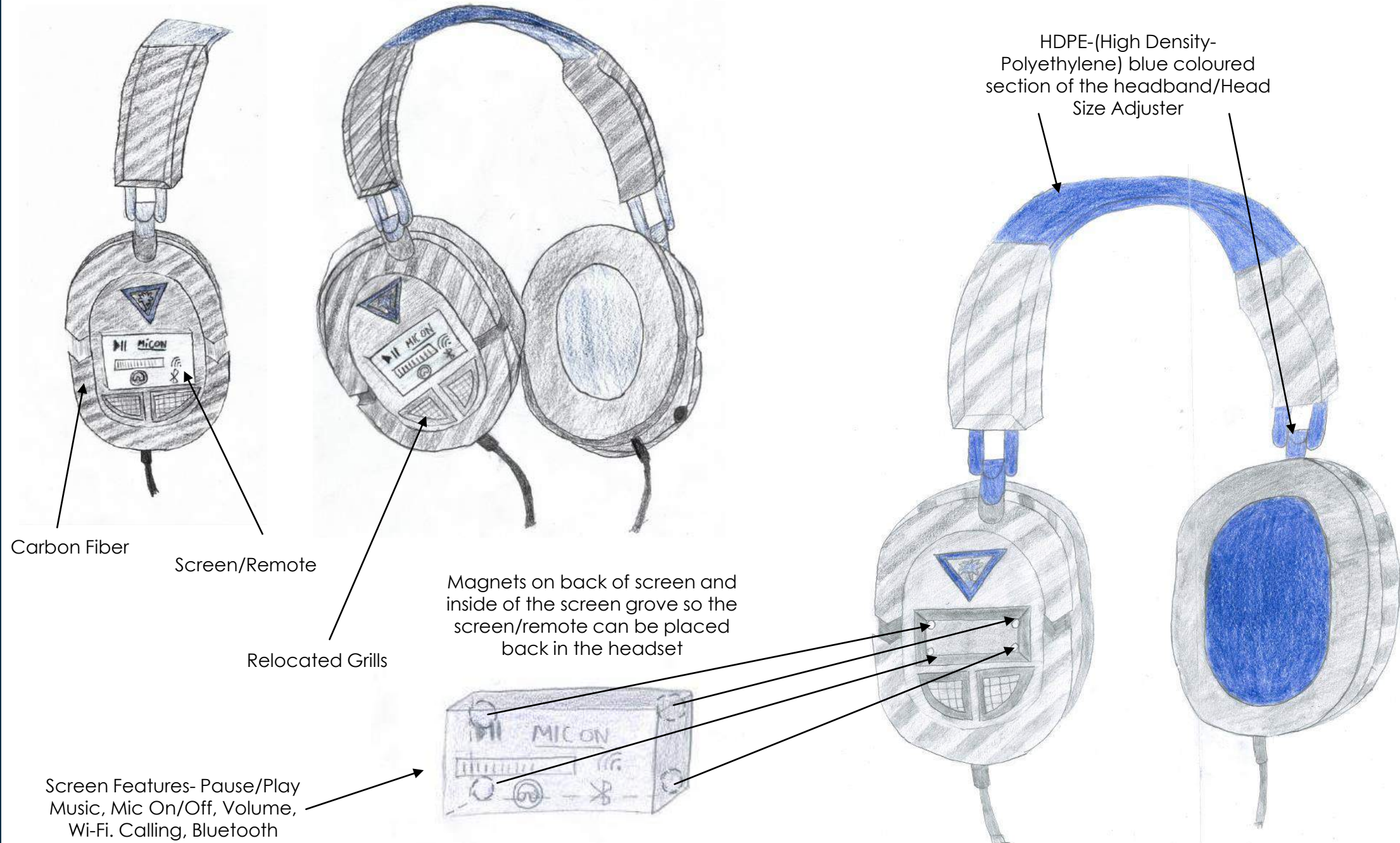


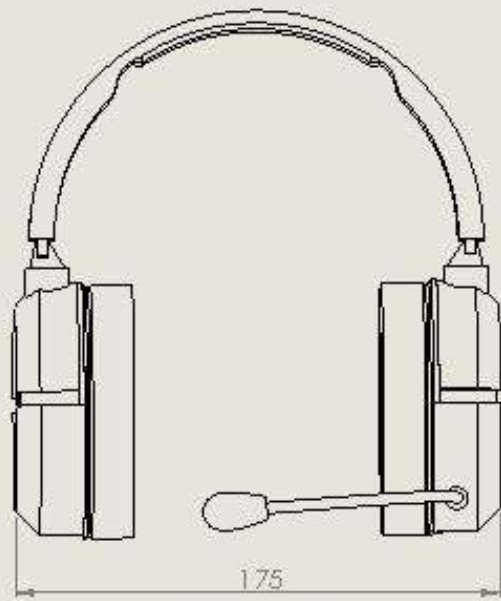
## Functionality:

In my design I made sure that while wearing the headset you could access the screen/remote by detaching the screen and have it as a remote. The screen responsiveness is quick so that you don't have to waste time clicking to mute/unmute mic etc.

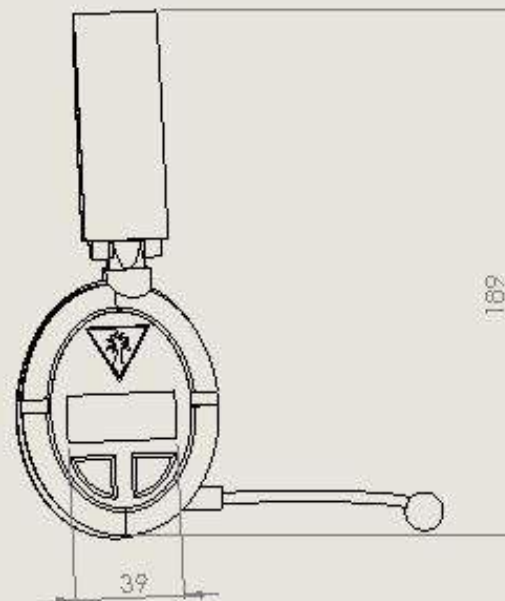


## Output-8 Presentation Of Modification





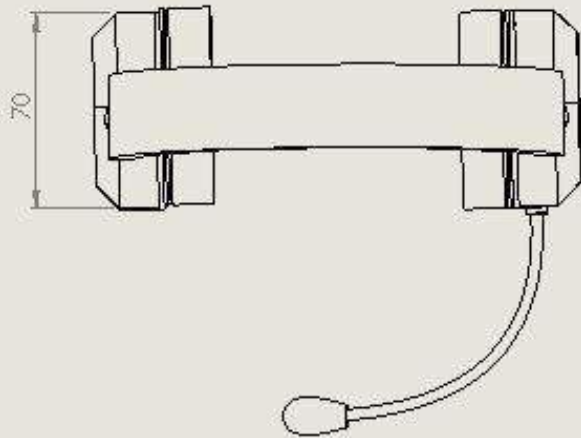
Elevation



Plan



Orthographic View



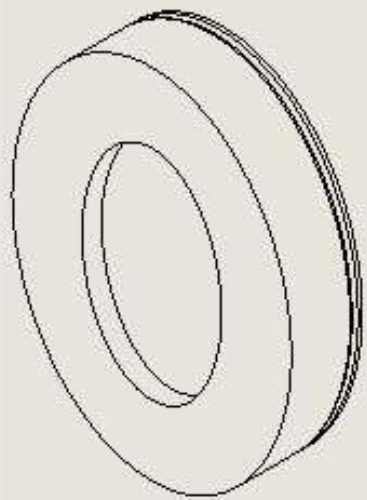
Plan



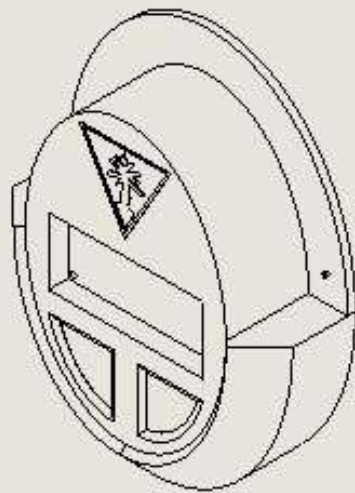
Wire

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SCALE: 1:5	DATE:		





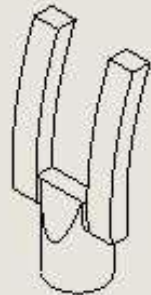
Ear Cushion



Ear Cup



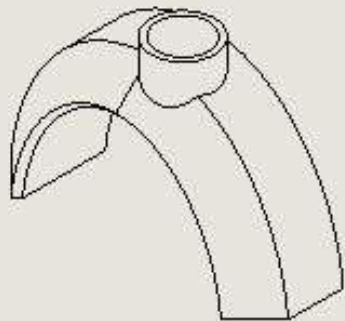
Exploded View



Adjuster



Headband



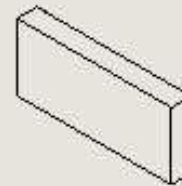
Ear Cup Connector



Microphone



Wire

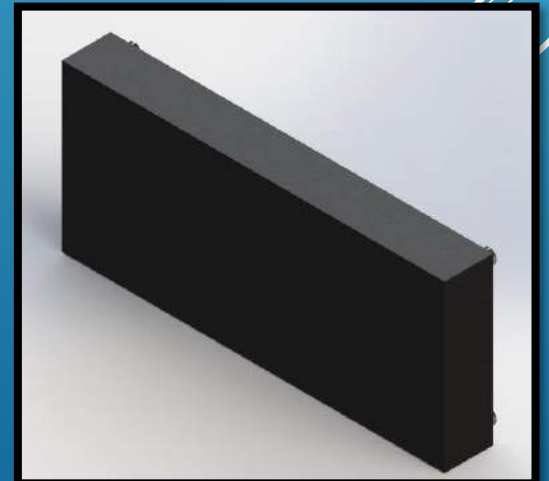
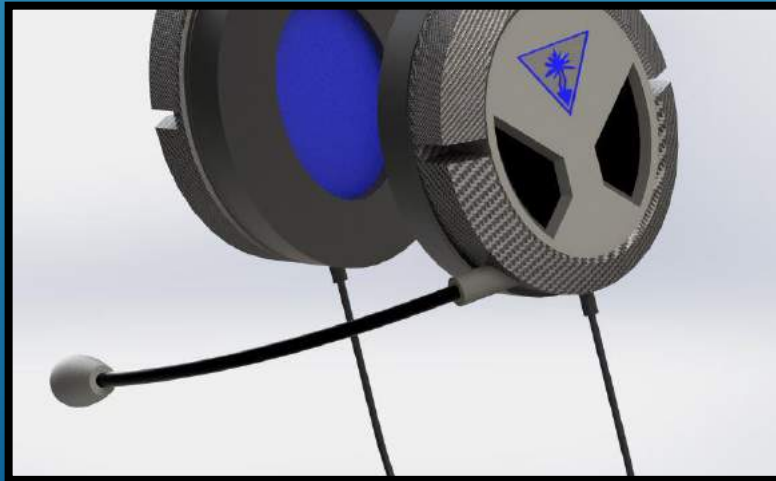
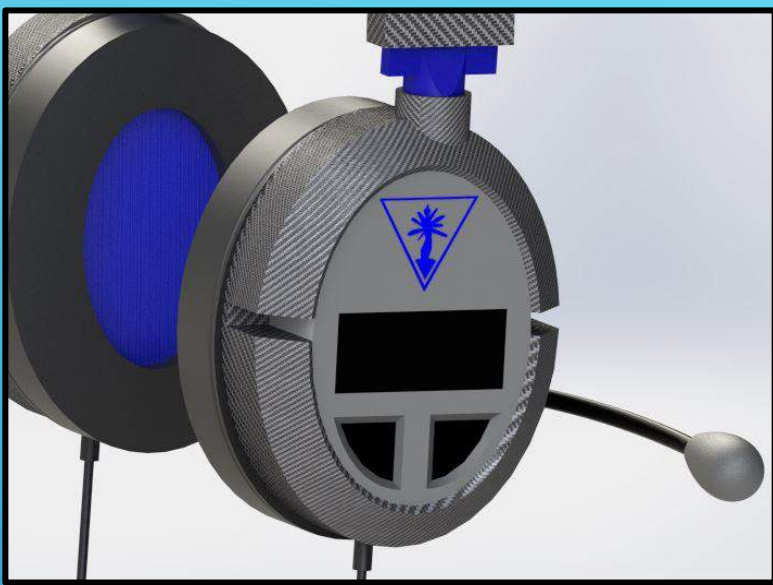


Remote/Screen

DESIGN & COMMUNICATION GRAPHICS			
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DRAWN BY:		SIZE A2	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN mm
SCALE: 1:5		DATE:	



# Photorealistic Representation Output 9



# REFERENCES

## Output 1:

- <https://coolmaterial.com/roundup/history-of-headphones/>
- <https://en.wikipedia.org/wiki/Headphones>
- <https://www.gamerpros.co/sennheiser-game-zero-headset-review/>
- <https://www.techwalla.com/articles/how-are-headphones-made>
- <https://en.wikipedia.org/wiki/Brass>
- [https://www.globalspec.com/learnmore/materials\\_chemicals\\_adhesives/metals\\_alloys/nonferrous\\_metals\\_alloys/copper\\_brass\\_bronze\\_alloys](https://www.globalspec.com/learnmore/materials_chemicals_adhesives/metals_alloys/nonferrous_metals_alloys/copper_brass_bronze_alloys)
- <https://eu.turtlebeach.com/pages/about-turtle-beach>
- <https://www.razer.com/eu-en/gaming-audio/razer-nari-ultimate>
- <https://www.head-fi.org/threads/dynamic-headphones-what-does-dynamic-mean.324921/>

## Output 2:

- ▶ <https://www.turtlebeach.com/products/recon-50p-headset>
- ▶ [https://en.wikipedia.org/wiki/Bose\\_headphones](https://en.wikipedia.org/wiki/Bose_headphones)
- ▶ <https://www.dell.com/en-ie/shop/alienware-wireless-gaming-headset-aw988/apd/520-aanp/gaming-gaming-accessories>
- ▶ <https://eu.turtlebeach.com/products/recon-50p-headset>
- ▶ <https://ie.ign.com/articles/2017/12/29/turtle-beach-recon-50-gaming-headset-review>
- ▶ <https://ie.ign.com/articles/2018/09/17/alienware-aw988-wireless-gaming-headset-review>
- ▶ [https://www.huntoffice.ie/alienware-wireless-gaming-headset-aw988-headset-full-size-2-4-ghz-wireless-wired-3-5-mm-jack-dell-hs-aw988-4816796.html?gclid=EAlaIqobChMlzsrbj9XX5AIVCNHeCh1emAnsEAYYASABEgL45\\_D\\_BwE](https://www.huntoffice.ie/alienware-wireless-gaming-headset-aw988-headset-full-size-2-4-ghz-wireless-wired-3-5-mm-jack-dell-hs-aw988-4816796.html?gclid=EAlaIqobChMlzsrbj9XX5AIVCNHeCh1emAnsEAYYASABEgL45_D_BwE)
- ▶ <https://www.amazon.co.uk/Alienware-Wireless-Lightweight-Crystal-Clear-Communication/dp/B07H9WX6Z1>
- ▶ <https://www.dell.com/support/article/ie/en/iebsdt1/sln310270/dell-aw988-alienware-wireless-gaming-headset-usage-and-troubleshooting-guide?lang=en>