

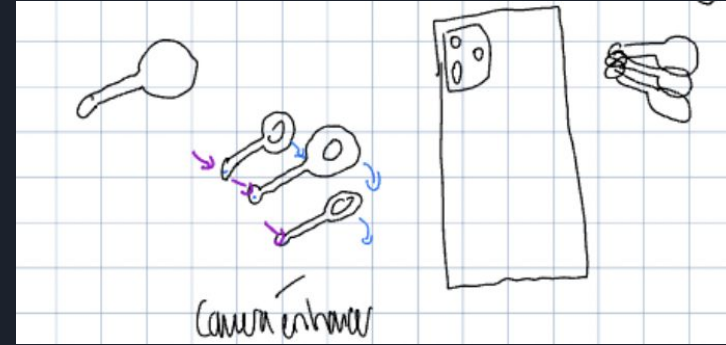


E29 Project Design Deliverable 1

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Project Idea 1: Phone Camera Lens Attachments

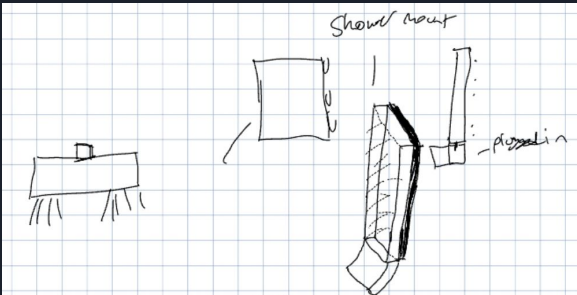
- Phone camera lens attachments: Lens that attach onto your phone so that you can use different lenses on your phone
- Targets social media users or those who want more versatility with their phone cameras
 - Define the lens specifications and buy them. They're too complex to manufacture.
 - CAD the shape of the ABS plastic that holds the lenses.
 - 3D printing would be the fastest and cheapest way to prototype it.
 - Interference fit would be used, where the holder will have a smaller diameter than the lens, so it would hold it tight into place.



Project Idea 2: Shower Speakers

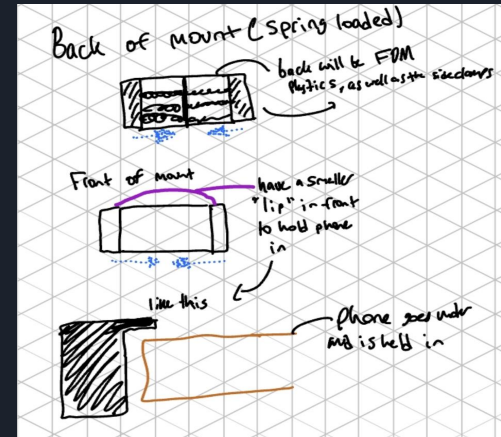
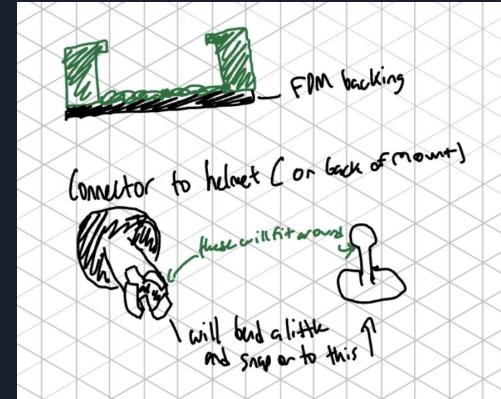
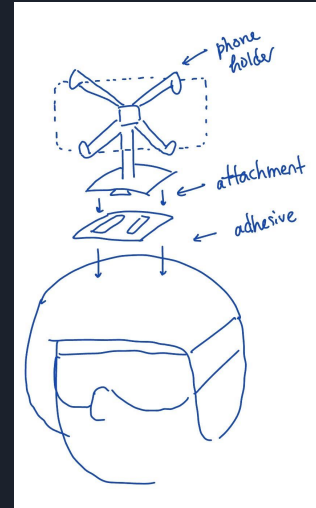
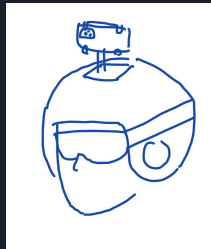
- Shower Speakers:

- The case specifications would be that of the biggest iphone in the market (maybe a little bigger so the phone along with the case can fit)
- CAD would be used to design a prototype and 3D printed.
- Suction cup would be attached using adhesive or screw on mount to the back of the case so it sticks onto a surface.
- The bottom would have an iphone port connector (it would be difficult to manufacture so we thought we could cut it from an iphone headphone then attach the wires to the speaker).
- Speaker would be waterproof. And battery powered so the volume is loud enough.



Project Idea 3: Ski/Snowboard Helmet Phone Mount

- Ski/Snowboard Helmet Phone Mount:
 - Phone connects to a spring-loaded mount
 - Mount is connected to handle with adhesive pad on other end that sticks to helmet
- Why we chose this one:
 - Our team voted for it because it is the product we'd most likely use after the semester is over
 - It seems like a product that would be popular among those who ski/snowboard



Needs and Market:

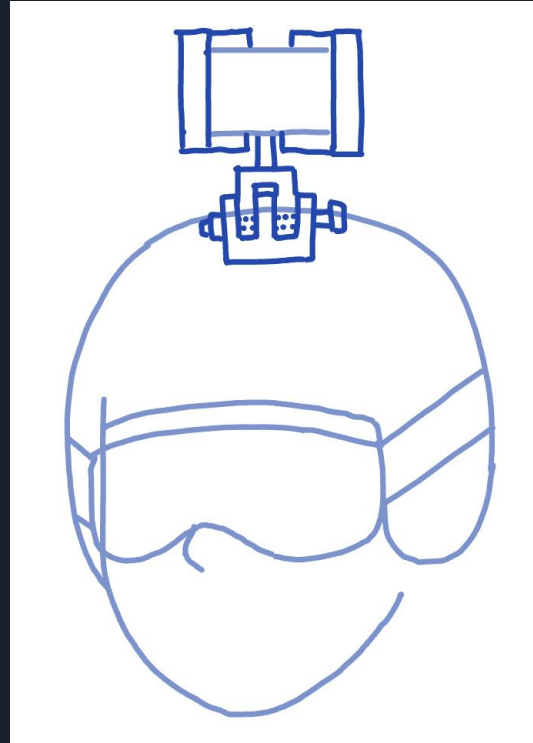
- The need:
 - Recording ski runs safely and efficiently while mitigating risk to the user or others
 - Millions of people go skiing every year
- Why we're interested:
 - Many of the members of our group enjoy skiing
 - We want to find a way to record runs without buying an expensive GoPro
- Why companies should be interested:
 - The global action camera market is forecast to be worth 4.4 billion U.S. dollars by 2030
 - The market is growing at a CAGR of 5.2 percent between 2021 and 2029
 - The current leader in the action camera market is GoPro, with their flagship camera the Hero 11 with a price of \$550
- What we would add to the market:
 - Cheap alternative to GoPros
 - Accessible due to widespread ownership of mobile devices



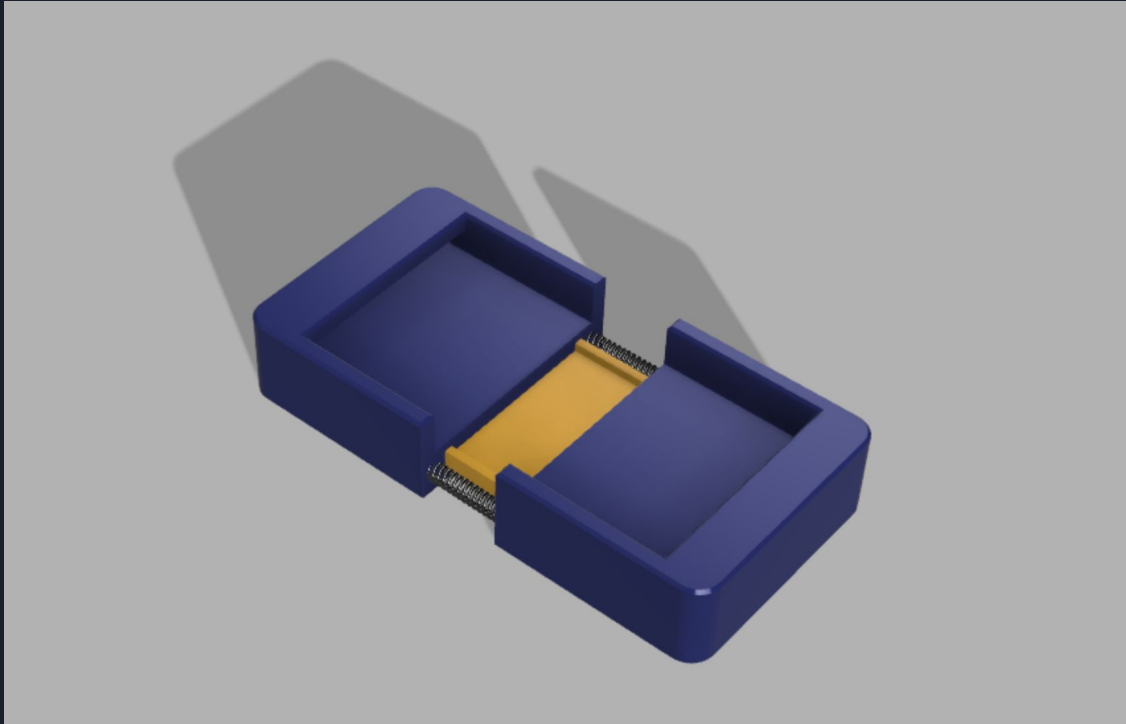
Our Solution:

A universal phone mount that attaches to a helmet.

We will go over the details in the following slides.

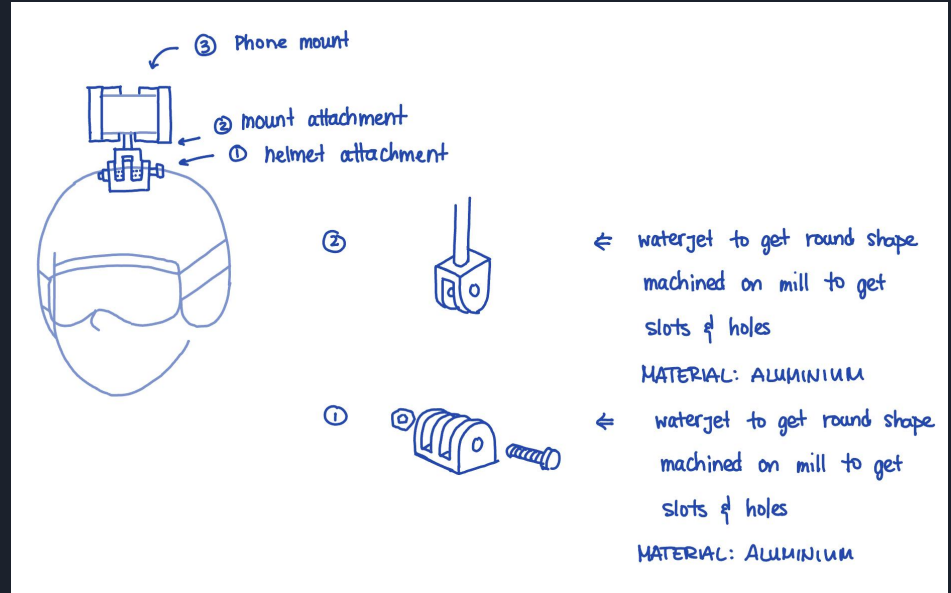


The Phone Mount:



The Helmet and Mount attachment:

- Rounded slots that allow for the mount to pivot
 - Tightened with a screw
- 3M adhesive from helmet attachment to helmet





Possible Manufacturing Techniques

- Phone Mount:
 - To create supports for the back of the phone, use CAD and 3D printing. The supports should have a slot that can be adjusted to fit the size of the phone. To keep the supports securely in place, incorporate springs into the design.
- Helmet and Mount Attachments:
 - ABS Plastic Possibility:
 - CAD and 3D print the parts. Threaded holes can be added to the design, allowing screws to be inserted and tightened into a screw fit.
 - Aluminium Possibility:
 - Water jet to carve and round off the edges, creating a smooth and polished finish. For the slots, a milling machine can be utilized to create precise and accurate cuts. With the use of a drill we would make the holes, we would thread the holes for the screw to ensure a secure and snug fit.



How our Concept will Function:

- Our project will function as a phone mount for people who want all the uses of an action camera, but without the associated costs.
- A phone mount will be attached to a mount that you can adhere to a helmet
- Additional features:
 - Pivot Ability - the helmet attachment to the mount attachment will allow pivoting of the angle
 - Quick access - the spring loaded mount will allow for quick access to your phone, while maintaining the safety of it inside
 - Removable mount - can place the mount on anything that has a helmet mount
 - Use expansion - can easily develop other attachments so that you can attach your mount to anything



Sources:

<https://gopro.com/en/us>

<https://www.statista.com/statistics/1059920/worldwide-sales-action-cams/>