

Final Slide Presentation

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The Original Idea

Problem: Need an easier way to carry skates and skate equipment

Primary Functionality:

- Holds all skate equipment
- Skates don't get scuffed while in the bag
- Easy to carry
- As lightweight as possible

Secondary Functionality:

- Place for my phone
- Place for water bottle

Thoughts:

- Skates are heavy so a bag for all my stuff would be great
- I've always been into skating so maybe this will push me to take it more seriously and be CONSISTENT

Existing Products/Solutions

Functionality

- Holds just the roller skate

Pros

- Very simple design and easy to carry

Cons

- Doesn't have much room for extra stuff (a water bottle, a helmet)

Takeaways

- This design is simple and does it's just however I don't really like how it looks like boot



Existing Products/Solutions

Functionality

- Holds rollers skates and other items

Pros

- Has pockets and sections specifically for different types of items

Cons

- Big and Bulky

Takeaways

- I like the idea of pockets and that it is shaped like backpack however it is bulky



Design and Planning

Ideate and Design

- *Holds roller skates and equipment*
- *Might need money to buy fabrics and I can't sew too well*
- *Key Features include a speaker pocket, separate compartments, and a pocket for a water bottle*

Engineering Research & Design 9/25/2020

What is my project?
- a roller skate bag

Primary Function

#1) Holds roller skates & skate equipment #3) Easy to carry
#2) Skates don't get scuffed while in the bag #4) As lightweight as possible

Constraints

* Money - may not be able to buy fabric and etc:
* Missing skates - don't have roller skates (YET) so I can't test how they would fit in the bag

Criteria

Size: backpack size or like a small duffle bag
Weight: bag itself shouldn't be too heavy because that will complicate things once skates go inside
Units supported: I assume skates weigh about 3 or 5 pounds and add ons like knee pads and a helmet don't weigh much.
Materials: I could use... old bags I have at home and deconstruct them to remake my own bag.

Key Features/Structure 9/25/2020

1) Built in speaker pocket (blue-tooth)

if not doable I could just add a mesh pocket so sound travels out from my phone. Still



2) Water bottle pocket

Depending on the bag I use must already have this pocket

(Most important)

3) Separate Compartments (on the inside)

Examples...

Area just skates
mesh pocket
pocket for

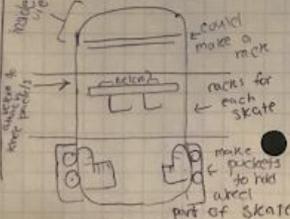
What could I possibly do?

create a built in roller skate rack

could make a rack
racks for each skate

make pockets to hold wheel part of skates

Bag is meant for roller skates but like design for my own bag

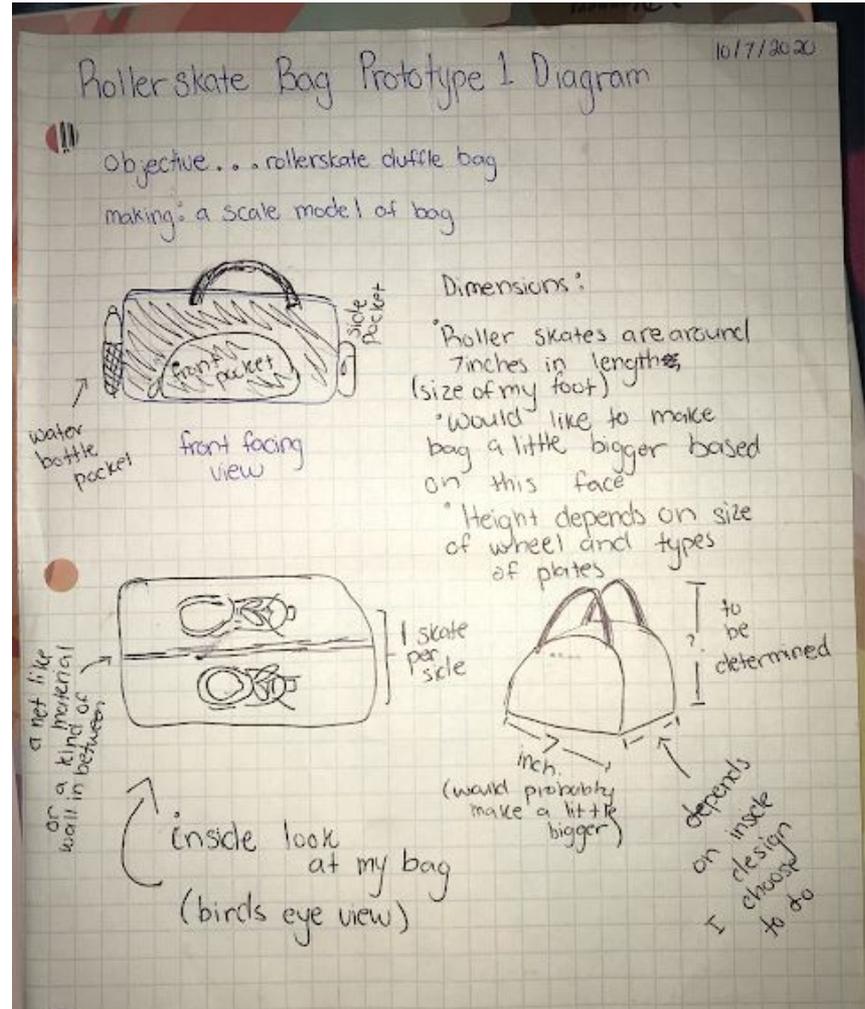


Prototype 1 Design

Objective: Design layout for prototype

Approach: Diagram

Materials needed:
Cardboard, tape, staples.



Phase 1 Prototype Build

- It may seem easy to just cut something and not think about it however you should measure things before so you don't have to go ten steps backwards to fix any mistakes
- It was nice to have a physical layout of what my end product should look like. That way I know what I want and what changes I wanna make and etc;.
- I used glue and tape to attach the handles and pockets but they didn't stick (which is why they aren't on the final product) so next time it might be easier to staple things that way I make a sturdier prototype.



Phase 1 Prototype Test

What is the purpose of the prototype

- To test the strength of the handles and the bag

How did you test your prototype (User Testing, Simulated Test, and/or Visual Evaluation)

- I tested my prototype by putting one of my roller skates inside and lifting it up as you would do a bag

Results

- As you can see in the video...my test didn't go too well. I had just stapled the straps down so that they would endure the test but it didn't work lol



Phase 1 Prototype Evaluation

What aspects of your design and/or build do you like?

- I like the shape of my design. I originally wanted to make a back back but seeing how my prototype came out I might stick with that.

What aspects of your design and/or build do you not like?

- I didn't like how minimal it was so maybe next time I can add more stuff to it to see what looks good and what doesn't.

How are you going to improve your design?

- Next time I would make it closer to the actual size I want my bag to be so that I can accurately test it. That would also make my evaluation test a lot more accurate .



Rough Draft Build

Something I learned was

- I was starting to think that there was no reason for the divider in between but when I put it in it actually makes sense and fits perfectly.

Something I like was

- I like how my vision is coming the life. My drawings and my drafts gave me a clearer idea of what I wanted and now to see it start to come together with actual materials is nice.

Something I will not do again

- I should have found a better a way to secure the cardboard in the bag because when I tried taking the skates out the cardboard came out with them and kept getting stuck underneath the skate.



Rough Draft Test

Type of testing

- User testing

The key features my Rough Draft addressed were

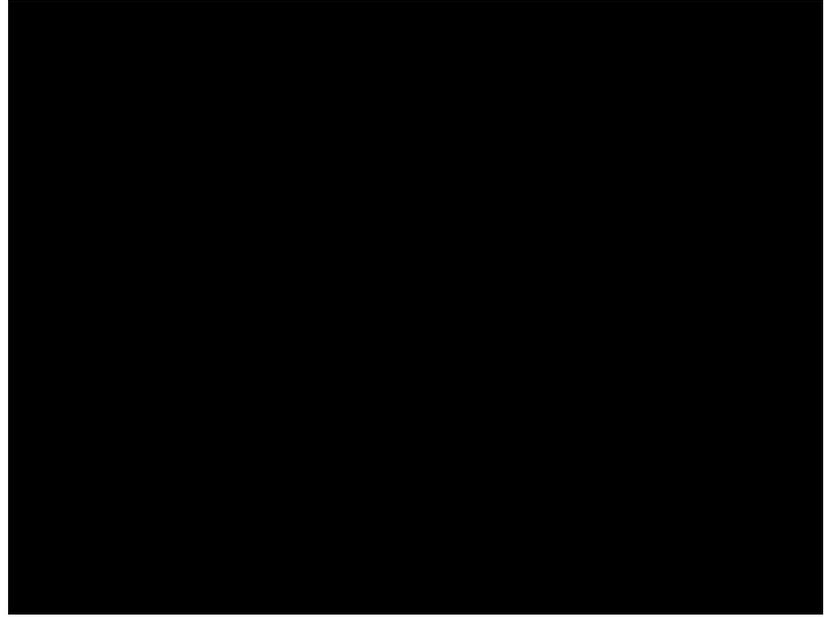
- I just started by picking which bag to use for the bass and then

To test my Rough Draft I did a (User Testing, Simulated Test, and/or Visual Evaluation)

- To test it I put my skates in the bag to see if they fit comfortably and there was enough space for not only the skates and the bag. I also put a cardboard divider in with the skates.

Results

- The bag held the skates comfortably. The backpack is pretty big and has several pockets to hold my skates as well as the equipment and etc;. The divider gave me some issues. It wasn't secure so it kept coming out when I would pull the skates out which resulted on in me taking forever to take my skates out.



- As you can see in the first video I struggled to pull the skate in the inner part (the closest to my back if it was on) out of the bag
- In the second video the front skate comes out easily but the cardboard comes out with it.

Final Iteration

Switch In Project

Why the switch?

- Easier.
- More likely to use.
- The originals are expensive so it's a nice DIY project.
- Hard to find materials for previous project.

Iteration 1 - *Roller Skate Toe Guards*

I chose to focus on this area because

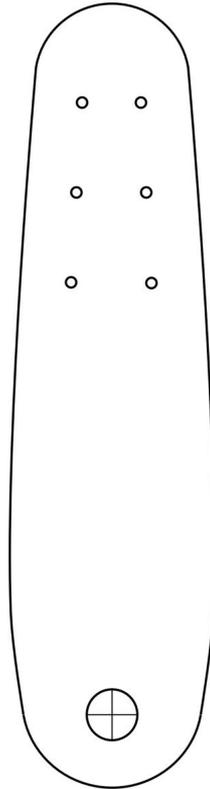
- These help keep my skates protected from damage. I don't want to ruin my skates anymore.

My approach

- Printed out a template
- Collected materials
- Began constructing

The results

- They came out great!!!





Iteration 2 - *Skate Leash/Skate Noose*

I chose to focus on this area because

- Making a skate leash would make it easier to carry my skates and it's simple

My approach

- Looked up how to do it
- Bought the materials
- Sew

The results

- Works very well, very comfortable. Very simple yet useful and perfect.



(Examples of how they're supposed to look)

Project Functionalities

Primary/Secondary Functionalities

Covers the front of the skate

- Yes, I cut everything out correctly and it fits perfectly in front of the skate. Because these are skinny I wanted to make sure I cut it correctly so it's not too skinny or too wide but it properly covers the front effectively.

Is sturdy enough to withstand falls/drags

- Yes. Because I used double the fabric the skate guard is much thicker and can take the damage while I'm skating.



Primary/ Secondary Functionalities- Skate Noose

Holds Skates Correctly

- Holds the skates correctly without them twisting around and/or falling out of the skate noose.

Hold skates comfortably

- Yes!! The skates are already kind of heavy but being able to easily sling it over my shoulder is perfect and less hassle. The material of the skate leash is nice too. Not too much strain on my back



Project Reflection

Aspects of my project that I like

- I like that I get to make something I enjoy and am interested in. I look forward to using everything I make and it's also saving me money so that's a plus.

Aspects of my project that were difficult

- Sticking with one idea and time management

What I would do differently next time

- Plan it out more effectively and dedicate more time to it cause I do feel like I didn't invest as much time in it as I would like because I was doing a lot



(The left skate shows the final product while the right shows the work in progress)