Project 2.2.8 Design Brief

Client	Glasses and Sunglasses Manufacturing Companies
Target Consumer	Owners of Sunglasses and Glasses.
Designer(s)	Josiah Lieb, William Lao, Jeremiah Brown, Ryan Curley
Problem Statement	**What is the problem?** If you want to carry around sunglasses it is hard to keep track of them when you don't want to use them, and they can be broken easily from a fall. **Who has the problem?** Customers of Sunglasses and Glasses. **Where is the problem happening?** The problem is happening to sunglasses customers who lose glasses when not using them. **When is the problem happening?** When you are not wearing your glasses/sunglasses. **Why is the problem important?** The problem has caused customers to have to buy multiple sunglasses since they buy a new one when they lose one or break them.
Design Statement	Create a design of a case for glasses that can attach to a hip, belt, or backpack firmly that meets the dimensional requirement of at least 7"x3"x2", costs under $4 to manufacture, and meets all other criteria.
Criteria (minimum of 4 things)	1. Must be able to hold most sunglasses in the case. 2. The design must allow easy insertion of the sunglasses into the case such that it requires an average user 15 seconds or less to secure the glasses/sunglasses in the case. 3. The design must protect the sunglasses from a fall of at least 10 feet high. 4. The case must fit in the pouch of the computer bags found at South Western High School. 5. The case must be visually appealing to consumers.

Constraints (minimum of 4 things)	1. A final design must be agreed upon by all teammates and reviewed by the customer by 5/21/21. 2. The design must have at least the dimensions 7”x3”x2” with a .05 inch tolerance of all dimensions so then it fits most sunglasses. 3. A 3D printed prototype must be submitted by 5/28/21. 4. The cost of the case is under $4.
Deliverables	1. Completed Design Brief w/ realistic & measurable criteria and constraints 2. Individual & Team Preliminary Design Work (Concept sketches w/ notes & justification from each team member’s notebook) 3. Complete set of Working Drawings for this project 4. Successful physical/3D printed prototype of concept/design for testing purposes 5. Testing process overview that includes evidence of actual testing of physical prototype, reported results, and conclusions drawn from the results/process 6. Final evaluation of project (good, bad, ugly…) by your team and one other team 7. Completed Reflection/Conclusion Questions

Project Grading Criteria:

Project (100 pts):

		Yes	Kind of…	No
1.	Are ***all*** established project criteria met?	20	10	0
2.	Are ***all*** established project constraints met?	20	10	0
3.	Are ***all*** deliverables submitted by the deadline?	20	10	0
4.	Is the product design appropriate? – Will the target client(s), consumer(s), and/or user(s) approve? *(Is it creative/original…?)*	20	10	0
5.	Is the presentation/project completed with the utmost attention paid to the overall organization, understanding and professionalism/craftsmanship?	20	10	0

Total =100/100%

Final Score = Advanced, Proficient, Average, Needs Improvement, or Incomplete??? Why?

Justify your team's final score here:

- ***The overall project itself was made with both a sense of professionalism and urgency. Each step in the design process was either a unanimous decision or a well-thought conversation. Each team member was assigned a particular role and they completed their role with great satisfaction while being on schedule. The target client was anyone that uses and carries glasses around. We were able to test this in multiple criteria as we each gave a different perspective.***

Presentation (100 pts):

		Advanced	Proficient	Average	Basic	Incomplete
1.	Define the Problem ● Completed Design Brief ○ Client, Customer, and Designer ○ Problem Statement ○ Design Statement ○ Criteria (measurable) ○ Constraints (measurable)	20	18	16	13	0
2.	Generate Concepts ● Concept sketches (three minimum each) ● Justification for solution path (include a Decision Matrix)	20	18	16	13	0
3.	Develop Solution ● 3D, top-down model of accessory design ○ All necessary dimensional and geometric constraints are properly applied ○ The 3D solid model is sufficiently developed to provide acceptable estimates of physical properties. That is, the 3D model does not have to be a perfect representation of the final design, but an effective "model" of the design for the intended purpose. ● Annotated assembly drawings of product and accessory ○ All parts necessary to demonstrate design intent are included. ○ Dimensions are included to fully define the solution, including appropriate tolerances. ○ Dimensions are placed per dimensioning guidelines and accepted practice. ○ The drawing provides evidence that the design meets all design criteria.	30	25	20	10	0
4.	Construct and Test	30	25	20	10	0

- Visual, functional, and structural analysis of integrated assembly
- Physical and/or 3D-printed prototype

5.	Evaluate Solution • Self Team evaluation of design/project • Peer Team review of accessory design	20	18	16	13	0
6.	Completed Team Project Reflection Questions & Graded Project Rubric w/ Justification	10	9	8	6.5	0

Total =97/100%

Final Score = Advanced, Proficient, Average, Needs Improvement, or Incomplete??? Why?

Justify your team's final score here:

- **As a team, we went through each step of the integrated design with well thought out layout and captivating statements. Each part gives a detailed look and walkthrough of our processes and changes to the product.**

Project Team Reflection:

As a team, reflect and answer the following prompts:

1. *How is reverse engineering related to engineering design?*
    a. *Reverse engineering is related to engineering design because its process is basically the opposite of each other. Reverse engineering involves analyzing a completed product and disassembling it to learn about how it operates and its functions. This helps to reinforce design where the ideas and functions are implemented inside the product. Taking aspects of another product and combining them with your idea improves the process and final product.*

1. *Why is documenting all phases of the design process important?*
    - *Documenting all phases gives a physical way for designers to look back for places of improvements. Designers also use the documents to effectively communicate ideas to other designers on the phases and components. On top of communication this allows for easy credibility and a tool for manufacturers to choose your idea over competitors.*

2. *Why is self-assessment a valuable learning tool?*
    - *Self-assessment allows for the user to collect their thoughts after stressful and chaotic moments in a task. Allowing for the user to identify their faults and shortcomings in that particular task. Grading themselves and seeking improvement throughout the next assignment.*