Rawsen Mitchell

February 18, 2023

FYED

Hassebo, Ahmed

# Student Convenience Improvement

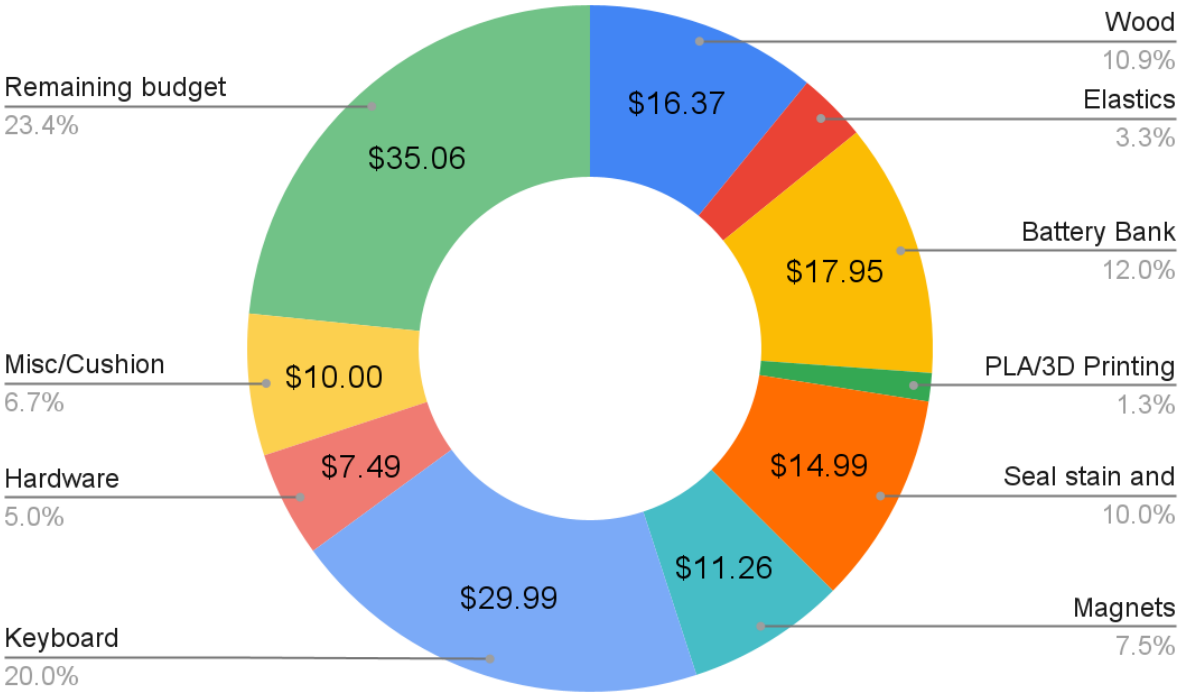
For this project, our team wanted to focus on improving the quality of life for college students during everyday activities. From this, I chose two aspects of the student daily experience that have the most effect on the student: transportation and food. Through our Design Selection Matrix, I decided to go with transportation. I decided to focus on making an item that improved the QOL (quality of life) during transportation for the individual and unanimously decided on an improved backpack design. This was a challenge because it relies on satisfying the needs of much of the targeted demographic. The user needs the item to be portable, sleek, and functional as an everyday item. It also needs to be of neutral style to accommodate varying types of personalities. The item needs to solve some sort of problem found in the everyday lives of those who are using it. The profile of the target audience lies in the 18–25-year-old demographic attending college or some university. These consumers would presumably need to carry around a laptop, water bottle, textbooks, writing utensils, chargers, clothes, and other miscellaneous objects. To decide which design prompts I would work with, I used a design matrix with weighted averages. I decided to use this tool for any decisions I needed to make. To gather data from the targeted audience about what some daily inconveniences are, I made a google form and posted flyers around the Colleges of Fenway. A specific design challenge I found was creating something that satisfied the needs of much of the targeted demographic. This required a lot of data gathering and brainstorming and will probably require much more product reviewing and data gathering.

Audience and concerns:

- Primarily students.
- Lots of books and other items from sports to classes and various other places.
- IDs for various needs.
- Fits many styles.

Materials and Budget Costs

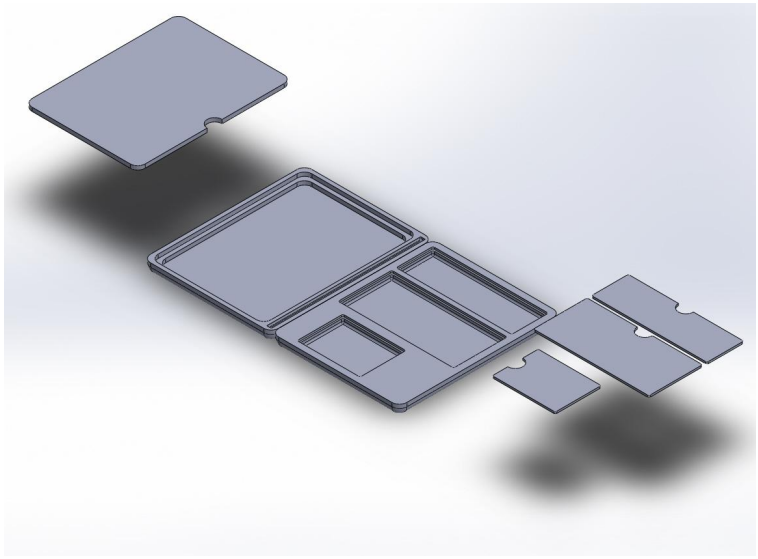
| Materials | specs | Dimensions (If Necessary) | Cost (If Applicable) |
|---|---|---|---|
| Wood | Pine | 1" x 10" x 6' | $16.37 |
| Elastics | | 10' | $4.89 |
| Battery Bank | 5000mAh w/ 5V 2.4A output | 3.9" x 2.83" x .22" | $17.95 |
| PLA/3D Printing | | | $2.00 |
| Seal stain and varnish | Dark Walnut | | $14.99 |
| Magnets | 100ct | 3mmx2mm | $11.26 |
| Keyboard | Logitech K380 | 4.9" x 10.9" x 0.6" | $29.99 |
| Hardware | 2X Hasp Catch + 4X Hinges | | $7.49 |
| Misc/Cushion | | | $10.00 |
| Remaining budget | | | $35.06 |
| Budget | | | $150.00 |
| | | Total | $114.94 |

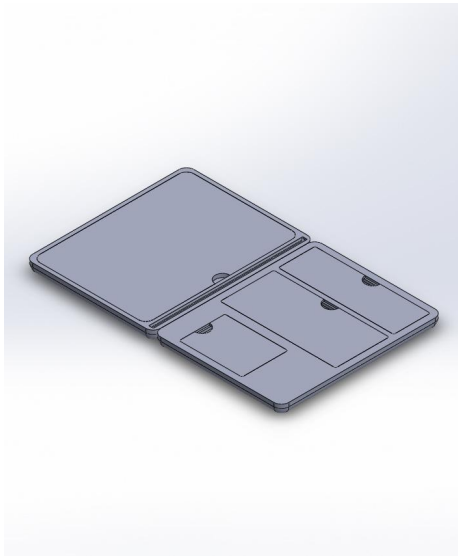


Mobilization Costs

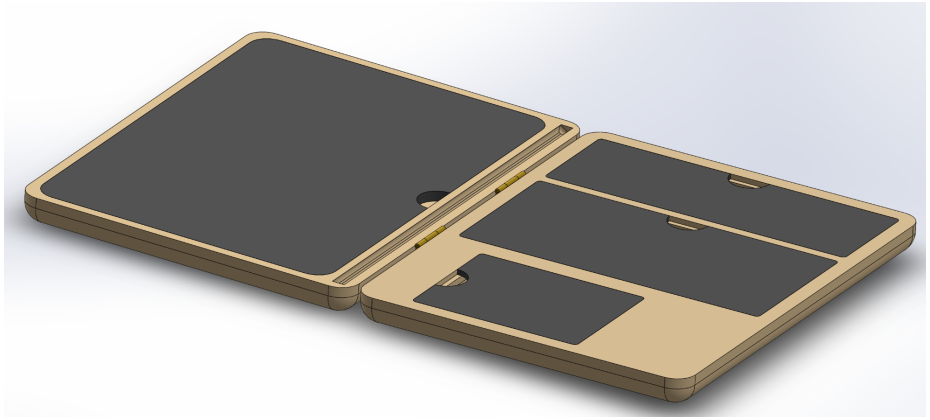
| Mobilization | | L (in) | W (in) | H (in) | Item | per | Cost | per | Total Cost | per |
|---|---|---|---|---|---|---|---|---|---|---|
| Case | 1 | 12" | 9" | 2" | 1 | EA | $13.10 | $1 | $13.10 | EA |
| | | | | | | | | | | |
| Internals | | L (in) | W (in) | H (in) | Item | per | Cost | per | Total Cost | per |
| Hinge and latch | 1 | na | na | na | 1 | EA | $7.49 | $1 | $7.49 | EA |
| Power Bank | 1 | 3.9 | 2.83 | 0.22 | 0 | EA | $0.00 | $1 | $0.00 | EA |
| Lids to all components | 1 | va | va | va | 4 | EA | $3.27 | $1 | $13.10 | EA |
| Elastics | 1 | 2 | 1 | 0.01 | 4 | EA | $0.33 | $1 | $1.30 | EA |
| | | | | | | | | | | |
| Case Accessories (opt) | | L (in) | W (in) | H (in) | Item | per | Cost | per | Total Cost | per |
| Engraving | 0 | na | na | na | 1 | EA | $3.00 | $1 | $3.00 | EA |
| | 0 | 0 | 0 | 0 | 0 | EA | $0.00 | $1 | $0.00 | EA |
| | 0 | 0 | 0 | 0 | 0 | EA | $0.00 | $1 | $0.00 | EA |
| | 0 | 0 | 0 | 0 | 0 | EA | $0.00 | $1 | $0.00 | EA |

Product Idea (so far)





With Materials Added:



Objectives:

| | | | | | | | Date started | Date Completed |
|---|---|---|---|---|---|---|---|---|
| Final Product | Iteration 1 | TRUE | ~~Model first iteration in solidworks~~ | | | | 2/18 | 2/21 |
| | | TRUE | ~~Create 3d model at 60%~~ | | | | 2/20 | 2/23 |
| | | TRUE | ~~Order main internal components~~ | | | | | |
| | | TRUE | ~~Measure Tolerances for magnets~~ | | | | | |
| | | FALSE | Figure out CNC operations/softwares | | | | | |
| | | FALSE | Gather Woodworking tools | | | | | |
| | Iteration 2 | FALSE | Analyze first iteration and create improvements | | | | | |
| | | FALSE | Produce fully toleranced 3d model at 60% | | | | | |
| | | FALSE | Make any modifications needed | | | | | |
| | | FALSE | Make sure wood is prepped | | | | | |
| | | FALSE | Finalize CNC files and start 1st trial of CNC machining | | | | | |
| | Iteration 3 | FALSE | Analyze second iteration and create improvements | | | | | |
| | | FALSE | Finalize hardware implementation | | | | | |
| | | FALSE | Finalize stain and finish | | | | | |
| | | FALSE | Make any needed modifications | | | | | |
| | | FALSE | Finalize assembly schedule and Gantt chart | | | | | |
| Progress | | | | | | | | |