EMGT 580

Management of Product and Process Design

Final Project Presentation

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ROTATING DESK

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Contents

Need Statement

General description of the situation

- Spending too much of your time in a seated position can leave your spine sore, stiff, and in pain.
- The need of the project is to deliver comfort to the right handed as well as left hand users while writing in a classroom, home, or a workplace.

Target population to be served

- Keeping in mind the ergonomics of the individual is mostly emphasized on Students and Working Professionals who work and invest most of the time sitting on a desk.

UNIVERSITY OF MICHIGAN-DEARBORN

PRODUCT SPECIFICATION

Back Size:	*16 3/4" W x 15 3/4" H*
Casters/Glides:	**2” plastic casters**
Frame Finish:	**Powder coat**
Frame Material:	**Metal w/ fabric mesh back**
Overall Depth:	**16 -22" D**
Overall Width:	**20" W**
Seat Height:	**16 to 21 inches**
Seat Material:	**Fabric covered foam**
Seat Size:	**17" W x 16 1/4" D**
Tablet Arm Size:	**13 1/4" W x 14 1/2" L**
Backrest angle	**110- 120 degrees**
Weight capacity	**350 lbs.**

Concept #1

- Rotating Desk
- It has a Cup holder and a tablet holder
- Adjustable height
- Seat cushioning
- Adjustable recline angle
- Require less moving force as the motion is rotatory

Concept #2

- Stable desk
- Cannot hold a tablet or a cup
- Cannot adjust the height
- Narrower seat without cushioning
- Does not have a recline angle
- Require high moving force since it does not have caster wheels

Concept #3

- The desk has a sliding mechanism
- Cannot hold a tablet or a cup
- Cannot adjust the height
- Wider seat but without cushioning
- Does not have a recline angle
- Require high moving force since it does not have caster wheels

	Concept #1	Concept #2	Concept #3
Criteria	Rotating Desk	Attached Desk	Sliding Desk
Breathable back rest	+	+	+
Desk height	+	0	0
Seat height	+	0	-
Cup holder	+	-	+
Flexibility	0	-	0
space occupied	+	-	+
Weight Capacity	0	+	-
Back support	-	+	+

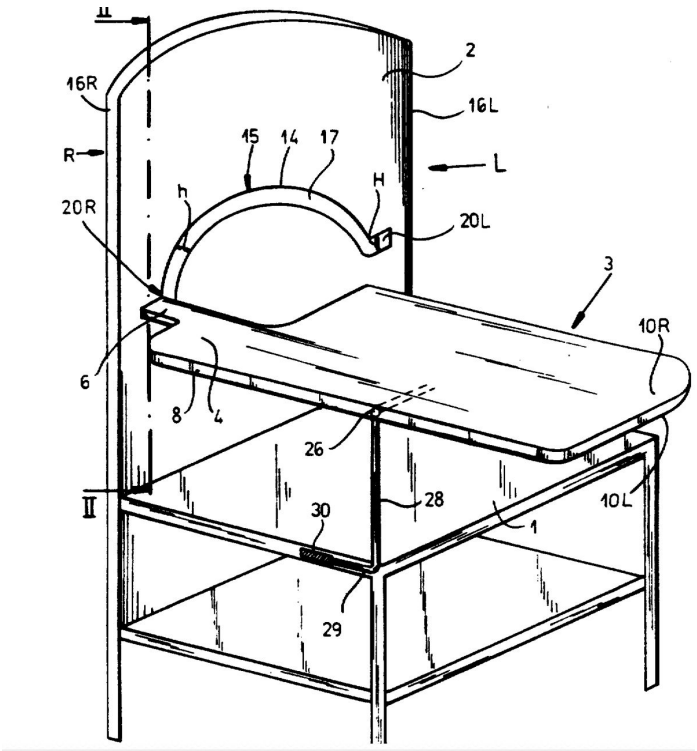
Sum of +'s	5	3	4
Sum of 0's	2	2	2
Sum of -'s	1	3	2

Net Score	4	0	2
Rank	1	3	2

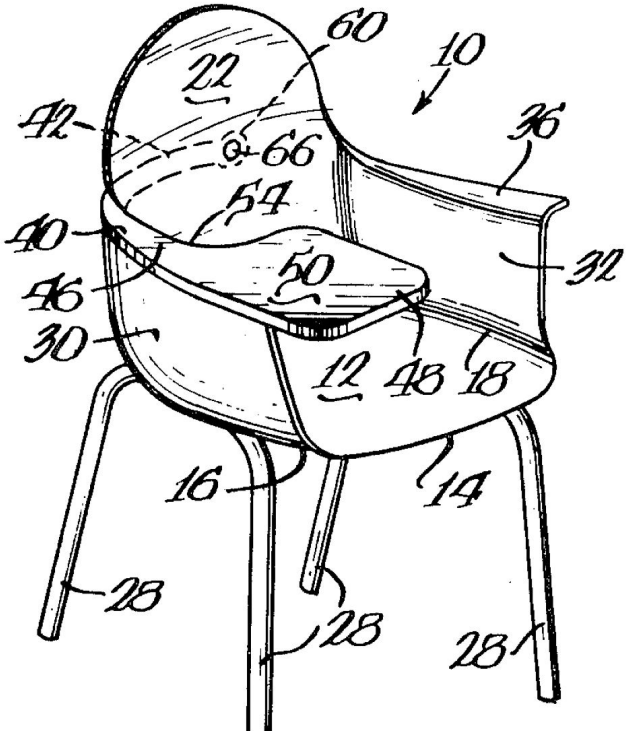
Selection Matrix

	WEIGHT		concept 1		concept 2		concept 3	
		weight	RATING	WEIGHTED SCORE	RATING	WEIGHTED SCORE	RATING	WEIGHTED SCORE
Breathable back rest	15	9	4	0.60	1	0.15	4	0.60
Desk height	12	7	4	0.47	3	0.35	3	0.35
Seat height	8	5	3	0.25	2	0.17	3	0.25
Cup holder	10	6	2	0.20	1	0.10	4	0.40
Flexibility	8	5	4	0.33	2	0.17	3	0.25
space occupied	10	6	5	0.50	2	0.20	4	0.40
Weight Capacity	8	5	3	0.25	4	0.33	2	0.17
back support	13	8	5	0.67	3	0.40	3	0.40
total score				3.87		2.32		3.27
rank			1		3		2	
continue			yes		no		no	

Patent Search

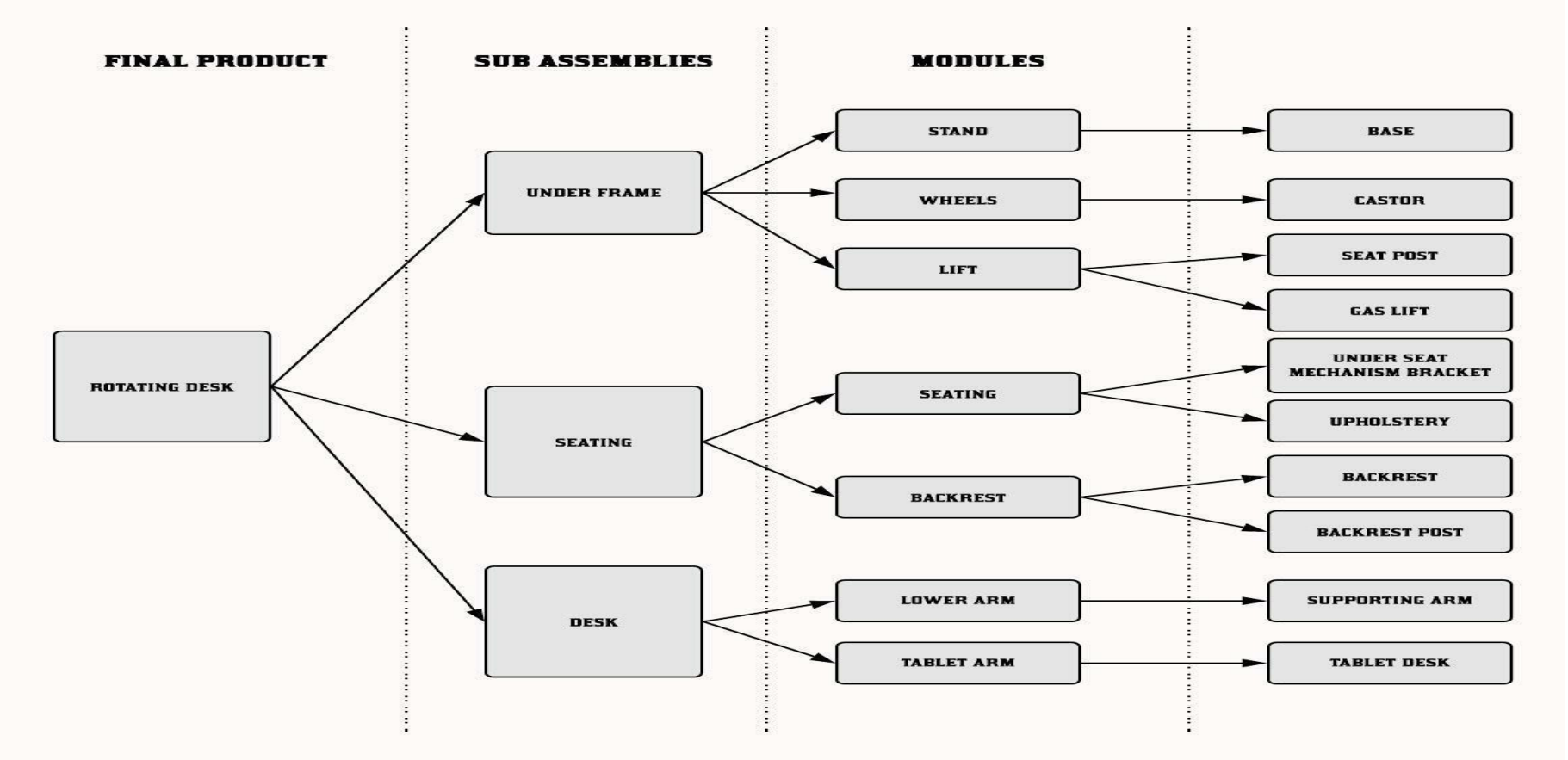


Patent 1



Patent 2

Product Architecture



Selected Concept

Conclusion

In conclusion, this project allowed us to delve into the various processes available to us as engineers while developing a new product. We learned that there is basically a process for anything. All in all, this was a very eye-opening project that exposed us to the multi-layered and dynamic nature of engineering.

THANK YOU