

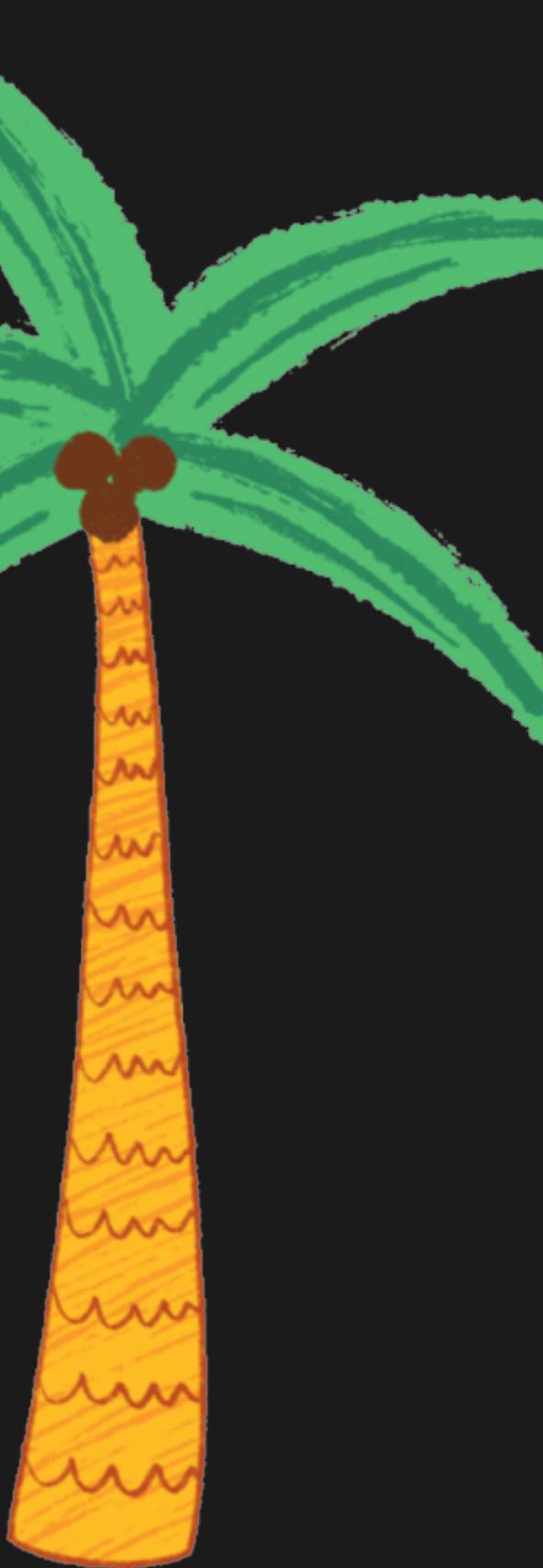
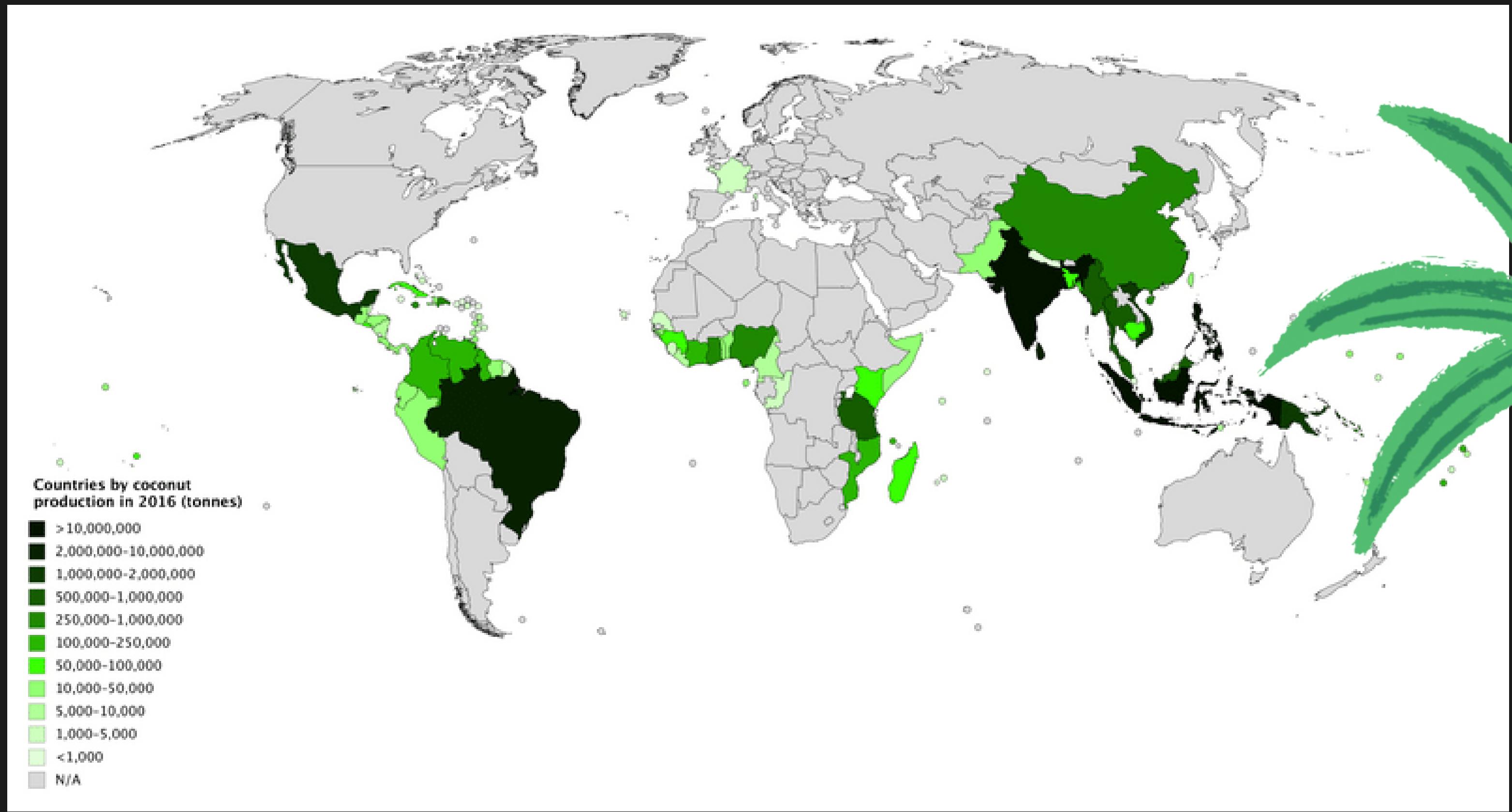


ME220

# COCONUT CLIMBER MACHINE

Prepared By : Group G3

- E/18/101 Fernando P.C.N. Miss
- E/18/104 Gajan.P Mr.
- E/18/097 Eswaran.M Miss
- E/18/103 Francisco V.L. Mr.
- E/18/086 Dissanayake D.J.G.C.H. Mr.





WIKIPEDIA  
The Free Encyclopedia

Main page  
Contents  
Current events  
Random article  
About Wikipedia  
Contact us  
Donate

Contribute

Help  
Learn to edit  
Community portal  
Recent changes  
Upload file

Tools

What links here  
Related changes  
Special pages  
Permanent link  
Page information  
Cite this page  
Wikidata item

Print/export  
Download as PDF  
Printable version

Languages

Article Talk

## List of countries by coconut production

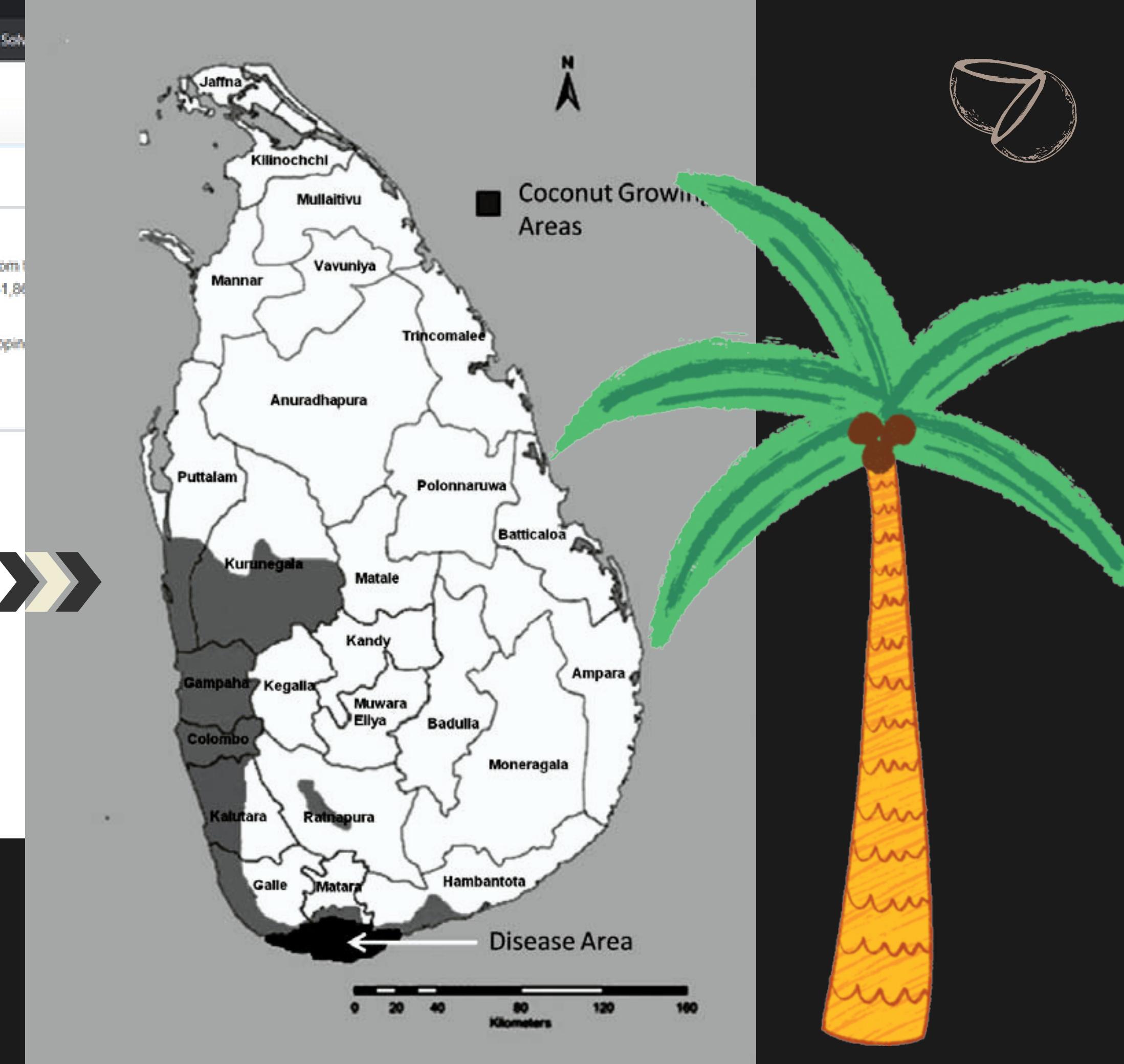
From Wikipedia, the free encyclopedia

This is a list of countries by coconut production from the years 2016 to 2018, based on data from the UN's [Corporate Statistical Database](#).<sup>[1]</sup> The estimated total world production for coconuts in 2018 was 61,860,444,228 tonnes in 2017.<sup>[1]</sup> Dependent territories are shown in italics.

[Philippines](#), [Indonesia](#) and [India](#) produce around 70% of the world's total copra,<sup>[2][3]</sup> with the Philippines being the main coconut oil exporters.<sup>[2]</sup>

### Coconut production by country [edit]

Rank	Country/Region	2018	2017	2016
1	Indonesia	18,555,371	18,747,003	17,979,533
2	Philippines	14,726,165	14,049,131	13,825,080
3	India	11,706,343	11,166,772	11,344,306
4	Sri Lanka	2,623,000	2,445,000	3,011,000
5	Brazil	2,346,750	2,210,139	2,634,396
6	Vietnam	1,571,709	1,499,228	1,469,960
7	Papua New Guinea	1,221,080	1,203,796	1,186,513
8	Mexico	1,158,471	1,157,614	1,156,757
9	Thailand	885,751	895,000	900,000
10	Myanmar	557,240	545,994	531,653
11	Tanzania	546,301	544,879	543,107
12	Malaysia	519,153	517,589	504,773



# INTERVIEW VIDEO

Question?

WHAT ARE THE TECHNIQUES YOU WILL USE WHEN  
CLIMBING THIS TREE!!



ME220

# AIM

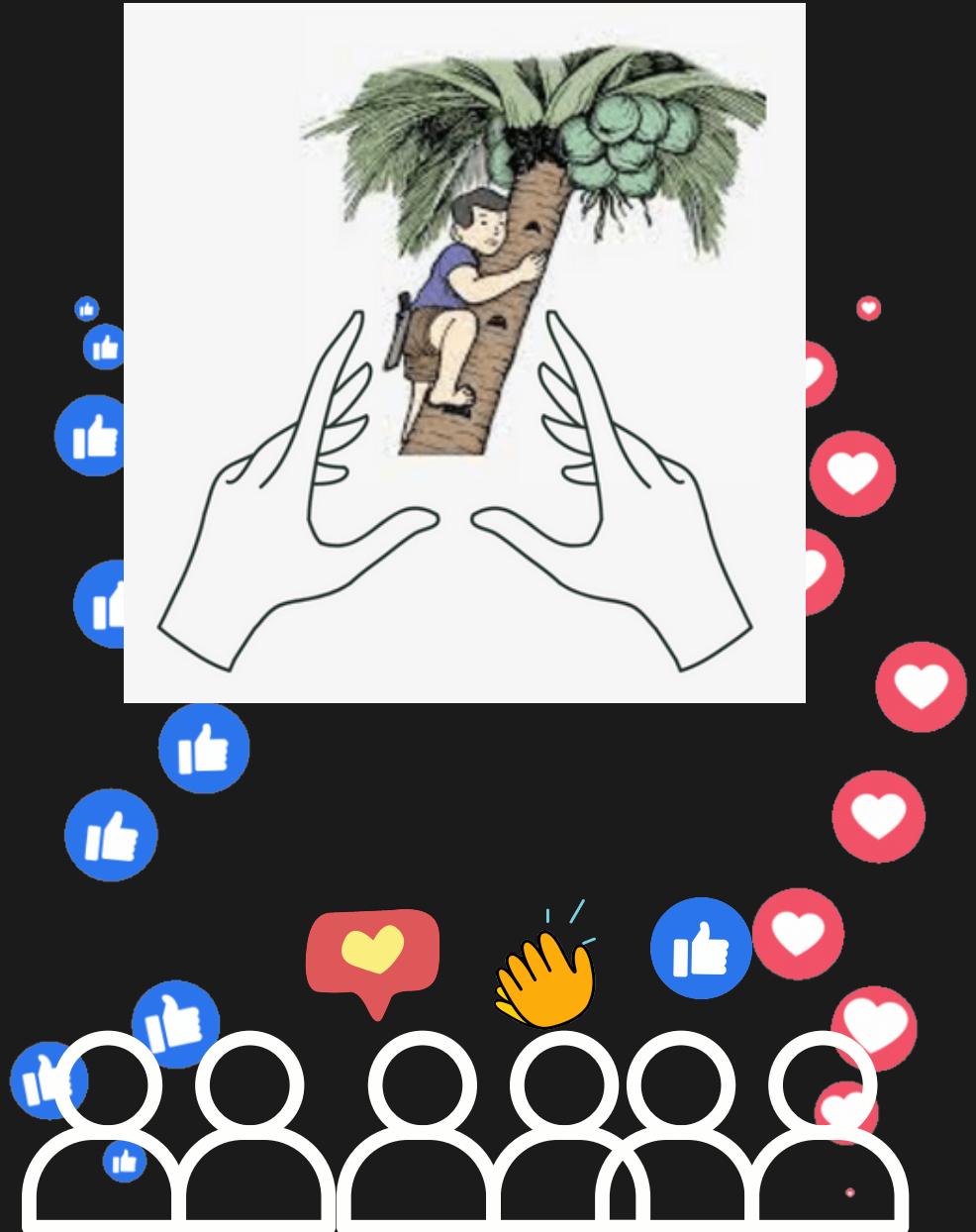
To design a coconut tree climbing machine that suits Sri Lankan coconut trees.

# OBJECTIVE

A tree climbing machine is a potential solution to the existing problem of **manpower shortage**.

It is necessary to develop a **vertical traction model** which will not damage the tree and has suitable performance both mechanically and economically. The detailed objectives are

- To identify and compare the different harvesting and climbing methods and select the most appropriate system.
- To develop the concept of a tree climbing machine.
- To determine the feasibility of the tree climbing system considering the interaction between the machine and the tree.
- To assess the economic feasibility of the design under Sri Lankan condition



# Content

1. Opportunity Identification
2. Customer Need Analysis
3. Product Specifications
4. Concept Generation
5. Concept Selection
6. 3D model of the final product
7. 2D model of the final product
8. Conclusions.

# 1. Opportunity Identification



# Step 1: Establish a Charter

The team established a charter to design and create a physical product similar to a coconut climber available in the market with better performance, including the product title, description, scope, business market, stakeholders, assumptions, constraints, team member's responsibilities, and responsibilities contact details.

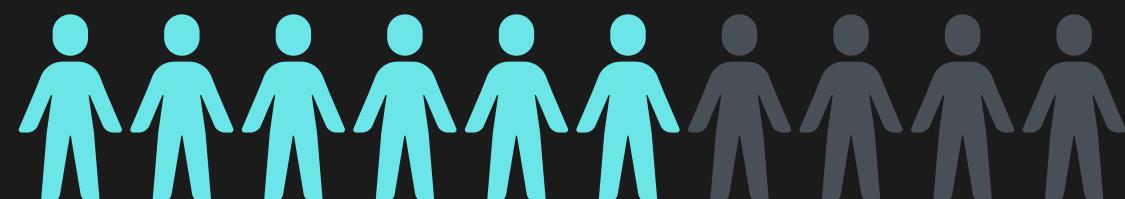
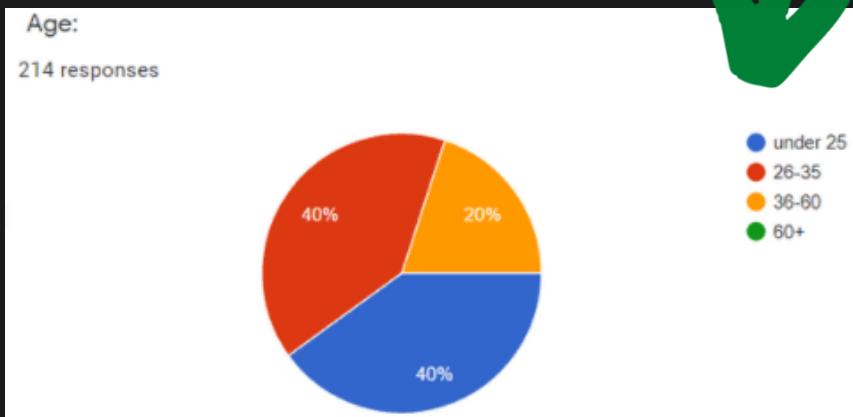
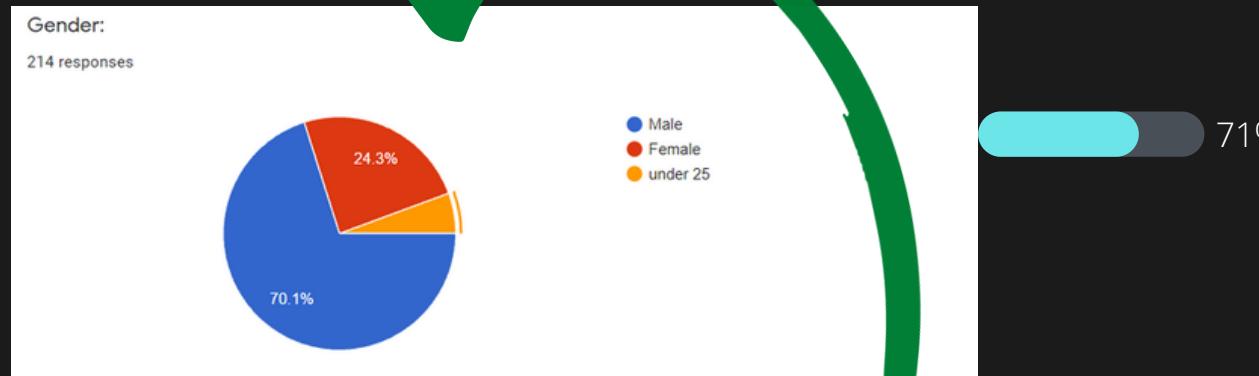
# Step 2: Generate and Sense many Opportunities

1. It is a dangerous job: Climbing a height of 24 meters and working at this height is very difficult and while certain workers can do it, they would rather do safer and easier jobs.
2. It is a slow operation: using coconut tree climber operators can work faster and reduce harvesting times .
3. It is an expensive operation: Using coconut tree climbers can decrease harvesting costs. There is a shortage of workers to do the cultural operations.
4. Most of the workers do not like climbing tall trees because it is dangerous and so coconuts are not harvested from these trees.
5. The tree trunk is rough and the leaves have very sharp spines which can injure the worker.
6. Snakes go into the tree crown to eat bird's eggs and chicks. They can bite the workers climbing the tree. Workers have fallen from trees as a result.

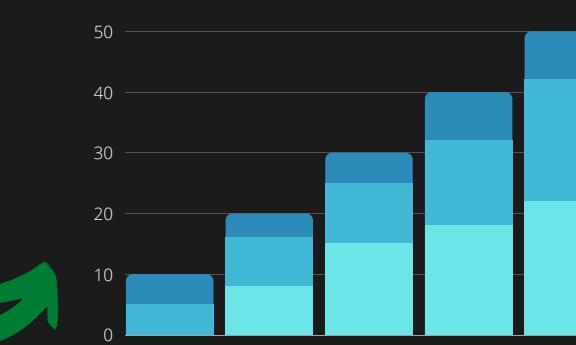
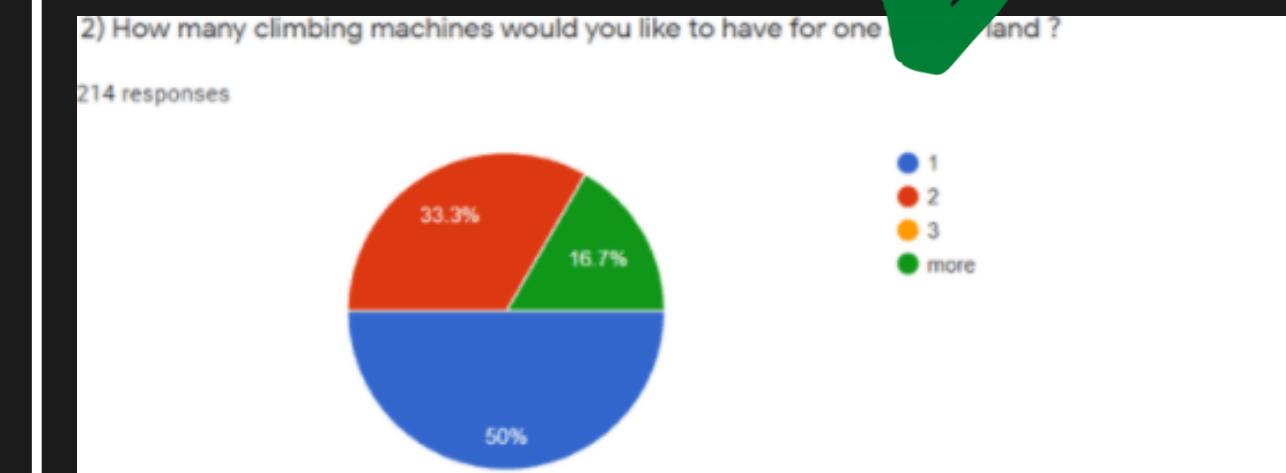
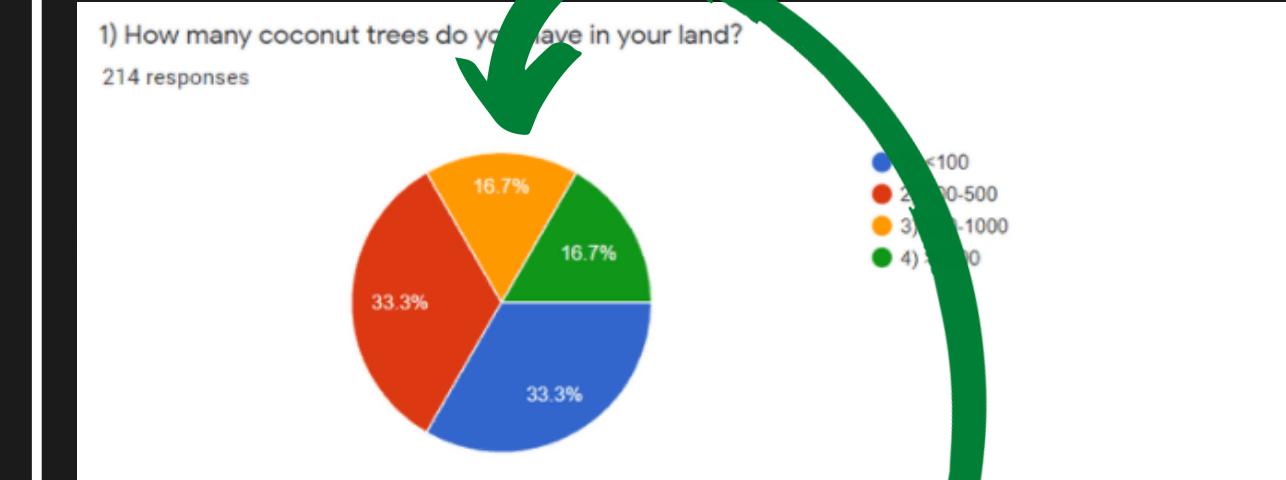


# Step 3: Screen Opportunities

WHICH IMPACT CONSUMER PREFERENCES MORE?



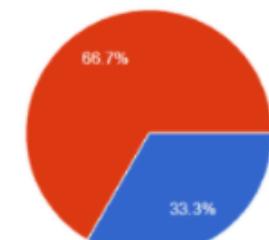
HOW MUCH IS NEEDED FOR OUR PRODUCT?



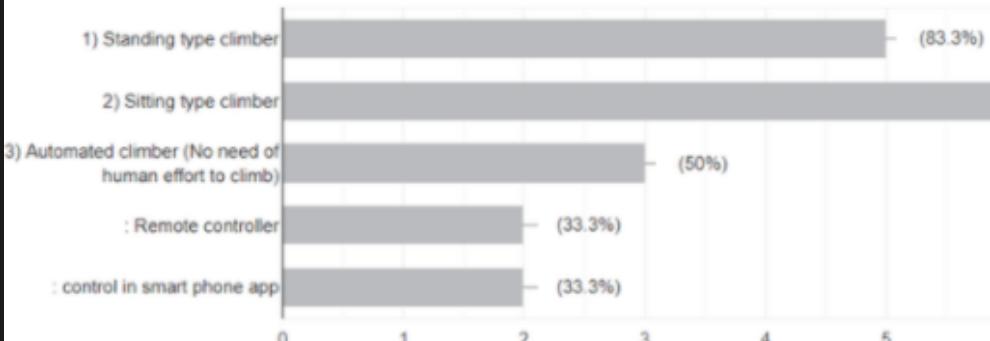
## WHAT TYPE OF PRODUCT DO YOU WANT ?

3) If you were to buy a coconut tree climbing machine, which of the following would you

214 responses



- 1) Manually operated machine
- 2) Electrically operated machine



Manual method climb



Standing type climber



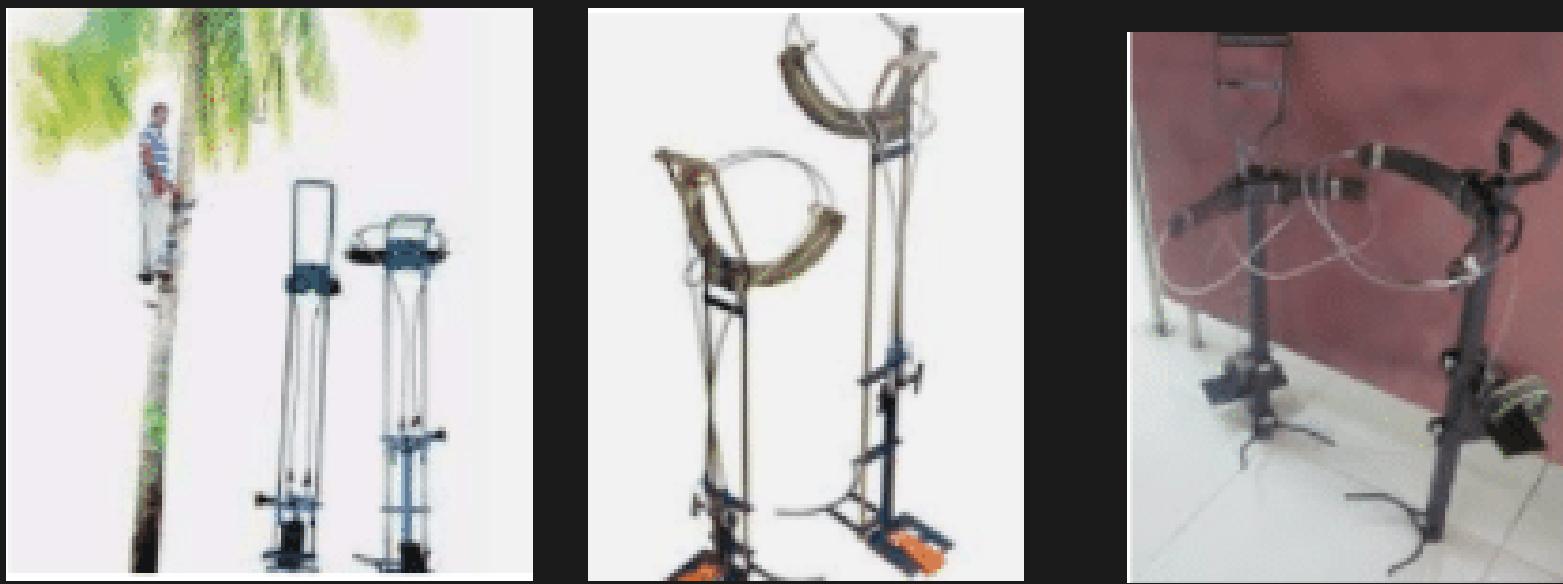
Sitting type climber



Electrically operated climber

# Step 4: Develop Promising Opportunities

Standing type  
climber

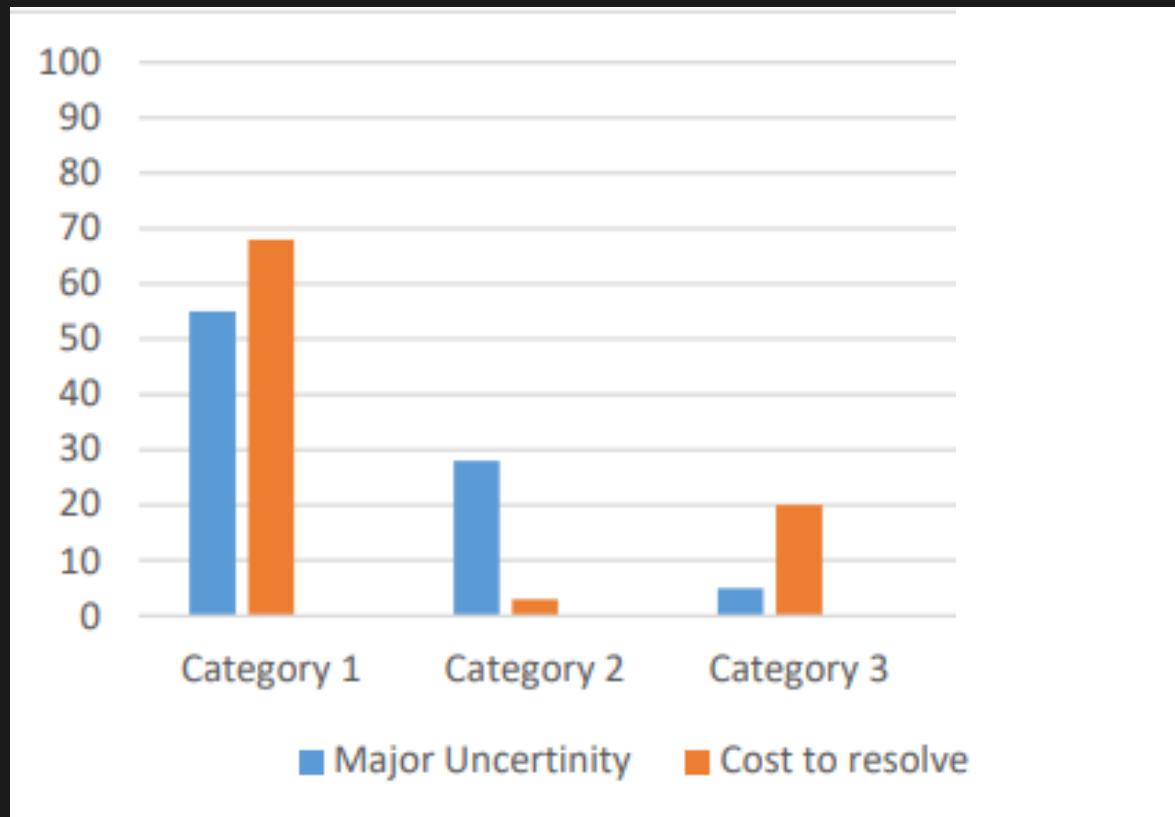


Sitting type  
climber



Electrically  
operated climber





## Comparison of uncertainties and cost to resolve

Category	Major Uncertainty	Resolve Method
1	Safety, Experience	Automation
2	Big size	Separate parts mechanism
3	Cost, Maintenance	Change in design for easy use

Uncertainties and resolve methods in coconut climber machine

# Step 5: Select Exceptional Opportunities

REAL  
WIN  
WORTH

# Step 6: Mission statement

## Product Description



Our aim is to design a manual, portable, eco-friendly coconut climbing machine which is safe for the climber who has not even trained to climb the trees.

## Benefit Proposition

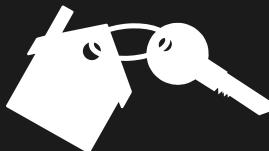


A simple, safe, easy to use device for any season and by any person  
climbing time 1-2min  
making more safer the climber

## Key Business Goals



First product introduced in 4th Q of 2021  
Approximately 150000 trees can be climbed during product life  
Load capacity until 200kg  
-safety of the user



## Primary Market



do it yourself consumers  
Coconut climber machine marketing agents



## Secondary Market



industries related to coconut production.  
gardening machinery industry.  
professional organizations that provides coconut climbers to the customers.(service providers)  
online marketing websites

## Assumptions and Constraints



manual(handle-using hands and lower part using legs for controlling)  
implement a seat and a seat belt for the safety(avoiding the danger occurs when leaning down)



## 2. Customer Need Analysis



# Step 1: Gather Raw Data from the Customer

Survey Timeline : 08/08/2021 - 18/10/2021

No. of Responses from Google form : 339

No. of People Interviewed : 10

(4-climbers 6-general people)

A screenshot of a Google Form interface. At the top, there are tabs for 'Questions', 'Responses', and 'Settings'. The 'Responses' tab is highlighted with a red circle and a magnifying glass icon. Below the tabs is a decorative background image of interlocking gears. The main content area contains a section titled 'RESEARCH FOR COCONUT CLIMBER' with a descriptive text and a vertical toolbar on the right.

RESEARCH FOR COCONUT CLIMBER

We are a group of 2nd year Mechanical Engineering undergraduates at University of Peradeniya . We are trying to design a innovative machine for climbing coconut trees. Your feedback is very important for this small endeavor we are going to start.

Please complete this short 1-minutes survey to let us know how satisfied your experience. All responses are recorded anonymously so feel free to provide honest feedback. Your responses will help us improve our

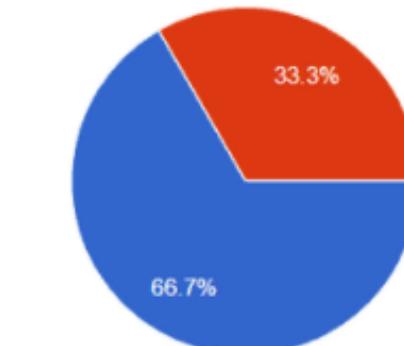
# Examining the condition of the climber?



# HOW MUCH WOULD IT COST ?

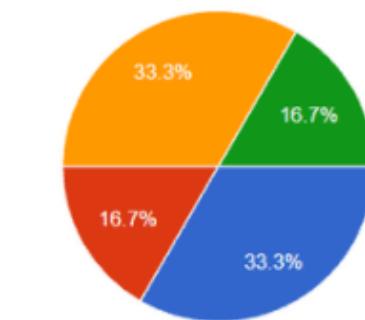
8) Would you prefer onetime investment on tree climber for a year? or not?  
214 responses

- 1) Yes
- 2) No



9) How much maximum money are you willing to spend on the climber?  
214 responses

- 1) 10-20k
- 2) 20-30k
- 3) 30-40k
- 4) 40-50k



# WHICH IS THE AREA THAT NEEDS TO BE FEATURED PROMINENTLY IN OUR PRODUCTION ?

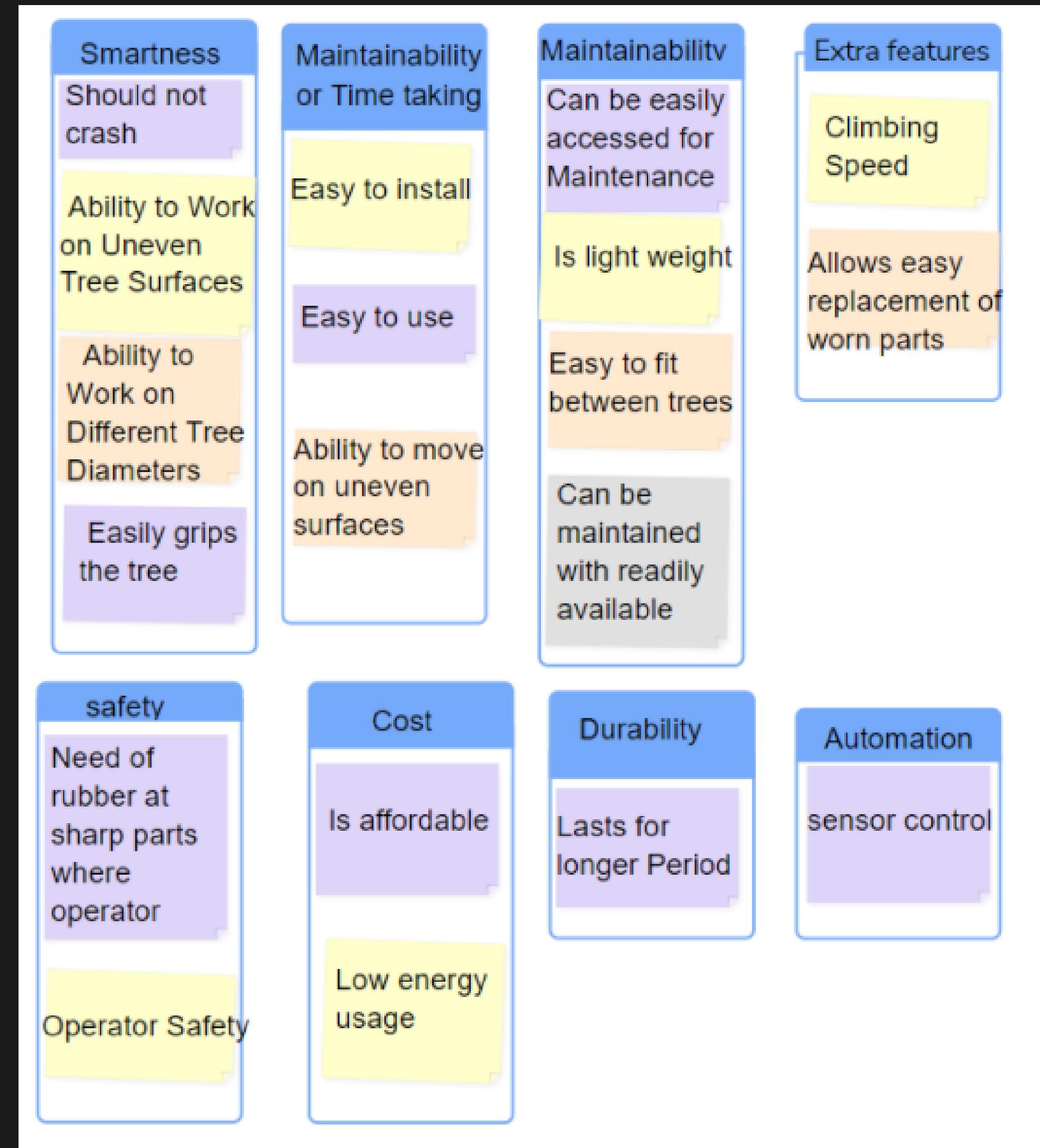
10) Which of the following reasons would discourage you from buying a coconut tree climber?  
214 responses



# Step 2: Interpret Raw Data in Terms of Customer Need

Question/ Prompt	Customer Statement	Interpreted Need
Typical Uses	It should not slip down	The climbing rope should have high friction until it makes start to move up.
	It is better if it suit for any coconut tree	Adjustable circular climbing rope
Likes	Electrically operated one is better	Fixing a motor,if possible
Dislikes	Being very expensive	Trying to use cheap but good in quality material.
	Safety issues when going up	
	Difficult to hold things when climbing	Fix a container
Suggested improvements	Automated one is easier	Set seatbelts,supported shoulder stand with chair
	Try to enhance the speed	Mechanism to reduce the weight of the user
	enhance the safety	Set seatbelts,supported shoulder stand with chair

# step 3: Organize the Needs into Hierarchy



# Affinity Diagram

Preference	Preference Value	Definition
9	Extreme importance	Choice Ni is Extreme importance than the choice Nj
7	Very strong importance	Choice Ni is Very strong importance than the choice Nj
5	Strong importance	Strong importance
3	Moderate importance	Choice Ni is Moderate importance than the choice Nj
1	Equal Importance	Choice Ni is Equal Importance than the choice Nj
2,4,6,8	values in-between	Choice Ni is values in-between than the choice Nj

	1	2	3	4	5	6	7	8	Row Total
1	1	4.00	4.00	2.00	1.00	2.00	9.00	9.00	32
2	0.25	1	2.00	2.00	0.25	1.00	9.00	9.00	24.5
3	0.25	0.50	1	1.00	0.25	0.50	9.00	9.00	21.5
4	0.50	0.50	1.00	1	0.25	0.50	9.00	9.00	21.75
5	1.00	4.00	4.00	4.00	1	2.00	9.00	9.00	34
6	0.50	1.00	2.00	2.00	0.50	1	9.00	9.00	25
7	0.11	0.11	0.11	0.11	0.11	0.11	1	1.00	2.66
8	0.11	0.11	0.11	0.11	0.11	0.11	1.00	1	2.66

Cat		%	Rank	Scaled Importance
1	Smartness	25.0%	2	5
2	Maintainability/Time taking	12.4%	4	4
3	Durability	8.7%	6	3
4	Manageability/Easy to handling	9.4%	5	3
5	safety	27.2%	1	5
6	Cost	13.9%	3	4
7	Automation	1.7%	7	2
8	Extra features	1.7%	7	2

## AHP Ranking of Customer Needs

# Step 5: Reflect on the Result and the Process

No.	Categories	Normal	Exciters	Expected	Importanc e	Critical Needs
1	Smartness			X	5	X
2	Maintaina bility		X		4	X
3	Durability	X			3	X
4	Manageab ility		X		3	X
5	Safety			X	5	X
6	Cost		X		4	X
7	Automatio n	X			2	
8	Extra features	X			2	

### 3. Product Specification



	Part	Need	Importance
1	Coconut Tree Climber	Lasts for longer Period	3
2	Coconut Tree Climber	Is light weight	3
3	Coconut Tree Climber	Is affordable	4
4	Coconut Tree Climber	Easy to use	4
5	Coconut Tree Climber	Should not crash	5
6	Coconut Tree Climber	Ability to move on uneven surfaces	4
7	Coconut Tree Climber	Easy to fit between trees	3
8	Coconut Tree Climber	Ability to Work on Uneven Tree Surfaces	5
9	Coconut Tree Climber	Ability to Work on Different Tree Diameters	5
10	Coconut Tree Climber	Climbing Speed	2
11	Coconut Tree Climber	Operator Safety	5
12	Coconut Tree Climber	Can be easily accessed for Maintenance	3
13	Coconut Tree Climber	Allows easy replacement of worn parts	2
14	Coconut Tree Climber	Need of rubber at sharp parts where operator works	5
15	Coconut Tree Climber	Can be maintained with readily available tools	3
16	Coconut Tree Climber	Low energy usage	4
17	Coconut Tree Climber	Easily grips the tree	5
18	Coconut Tree Climber	Easy to install	4

# Step 1: Prepare the list of metrics.

Metric number	Need No's	Metric	Importance	Units
1	1	Monster cycles to failure	2	Cycles
2	2	Total Mass	3	Kg
3	3	Unit Manufacturing Cost	4	Rs.
4	5	Industrial Standard Tests	5	Subj
5	6,8,9	Good suspension	5	--
6	7	Overall dimensions	5	mm
7	10	Speed better than human being	3	mm/sec
8	11	Operator safety instruments	5	List
9	4	Usage for people	4	Manual
10	12,13	Time to assemble/disassemble for maintenance	3	Sec
11	13,15	Special tools required for maintenance	3	List
12	16	Power consumption	4	Watt
13	17	Sufficient coefficient of friction	5	--
14	18	Time to install	5	Sec
15	18	Skill required for installation	3	List
16	14	UV Test duration to degrade rubber parts	4	hours

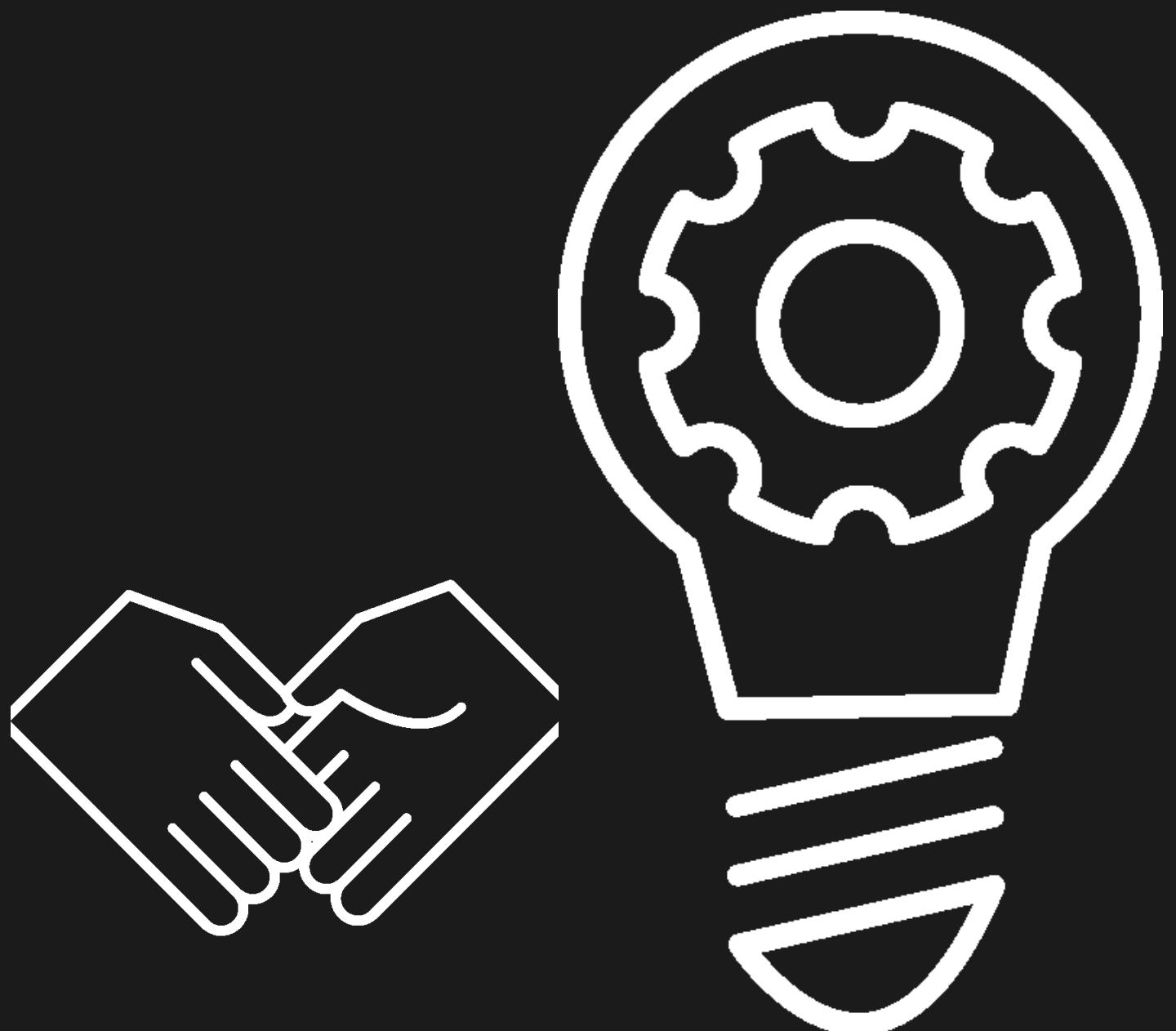
# Step 2: Collect Competitive Benchmark Information

Metric number	Need No's	Metric	Importance	Unit	Siddhi plastic industries	Al Abbas international	Shalom Greentech
1	1	Monster cycles to failure	2	Cycles	*	***	***
2	2	Total Mass	3	Kg	***	****	***
3	3	Unit Manufacturing Cost	4	Rs	***	**	*****
4	5	Industrial Standard Tests	5	Subj	***	*****	***
5	6,8,9	Good suspension	5	---	*****	*****	***
6	7	Overall dimensions	5	mm	***	***	****
7	10	Speed better than human being	3	mm/sec	***	***	***
8	11	Operator safety instruments	5	List	***	*****	***
9	4	Usage for people	4	Manual	*****	***	****
10	12,13	Time to assemble/disassemble for maintenance	3	Sec	***	*****	***
11	13,15	Special tools required for maintenance	3	List	***	***	***
12	16	Power consumption	4	Watt	***	***	**
13	17	Sufficient coefficient of friction	5	---	*****	***	*****
14	18	Time to install	5	Sec	*****	*****	***
15	18	Skill required for installation	3	List	***	***	***
16	16	UV Test duration to degrade rubber parts	4	hours	*****	***	***

# Step 3: Set ideal and Marginally Acceptable Target Values

Metric number	Need No's	Metric	Importance	Units	<u>Marginal value</u>	<u>Ideal value</u>
1	1	Monster cycles to failure	2	Cycles	<15	<10
2	2	Total Mass	3	Kg	<5	<4
3	3	Unit Manufacturing Cost	4	Rs.	<20000	<15000
4	5	Industrial Standard Tests	5	Subj	>3	>5
5	6,8,9	Good suspension	5	---	4 out of 5	5 out of 5
6	7	Overall dimensions	5	mm	<500*500	<400*400
7	10	Speed better than human being	3	mm/sec	20	25
8	11	Operator safety instruments	5	List	<u>Set of Tools</u>	<u>All</u>
9	4	Usage for people	4	Manual	Manual sitting type	Automated remote controller
10	12,13	Time to assemble/disassemble for maintenance	3	Sec	<4*60	<3*60
11	13,15	Special tools required for maintenance	3	List	Oil screw driver	List out in the catalog
12	16	Power consumption	4	Watt	<130	<50
13	17	Sufficient coefficient of friction	5	---	<0.15	<0.10
14	18	Time to install	5	Sec	<3*60	<1*60
15	18	Skill required for installation	3	List	Necessity of some experience	Read the catalog
16	14	UV Test duration to	4	hours	<0.5	<0.4

# 4. Concept Generation



# Step1: QFD diagram

Project: COCONUT CLIMBER		Functional Requirements						Customer Competitive Assessment				
Relative Weight	Customer Importance	Customer Requirements	▲	▲	□	□	▲	□	Our Product	Siddhi Plastic Industries	Al Abbas International	Shalom Greentech
			Adjustable size mechanism	Shock absorbing by spring system	Good grip base	Insulated body cover	Light weight	Industrial look				
18%	5	Smartness	●	●	●	○	○	▽	5	5	4	4
14%	4	Maintainability/Time taking	●	○	▽	▽	▽	▽	4	5	3	3
11%	3	Durability	▽	●	○	▽	▽	▽	3	2	2	1
11%	3	Manageability/Easy to handling	●	●	○	○	●	▽	3	3	2	2
18%	5	safety	●	●	●	●	○	▽	5	5	4	4
14%	4	Cost	○	○	▽	○	▽	●	4	3	5	5
7%	2	Extra features	▽	○	▽	▽	▽	○	2	1	1	2
7%	2	Automation	▽	○	▽	▽	▽	▽	2	1	1	1
			Importance Rating Sum (Importance x Relationship)									
			614.285	642.8	428.5	328.5	257.1	228.57				
			Relative Weight	25%	26%	17%	13%	10%	9%			
			Our Product	5	5	3	3	2	2			
			Siddhi Plastic Industries	4	5	3	2	3	2			
			Al Abbas International	4	3	2	3	4	2			
			Shalom Greentech	3	4	2	3	4	1			

Relationships	Weight
Strong	●
Medium	○
Weak	▽
Maximize	▲
Target	□
Minimize	▼

Positive	+
Negative	-
No Correlation	

# Step2: Functional decomposition

Shock absorbing Mechanism	Force distribution	Fall Prevent base	Shoe cap base shape
cushioning	Single impact	Sled type mat	Circular
ferrule	Multiple impact	Non-slip rubber ferrule	Square
Pivoting tip	Impulse to foot, heel and metatarsal	Tri pivoting base	Triangular
spring	Impulse to knee & lap	Add on device	Shape of human foot
magnets			Different ergonomically shape

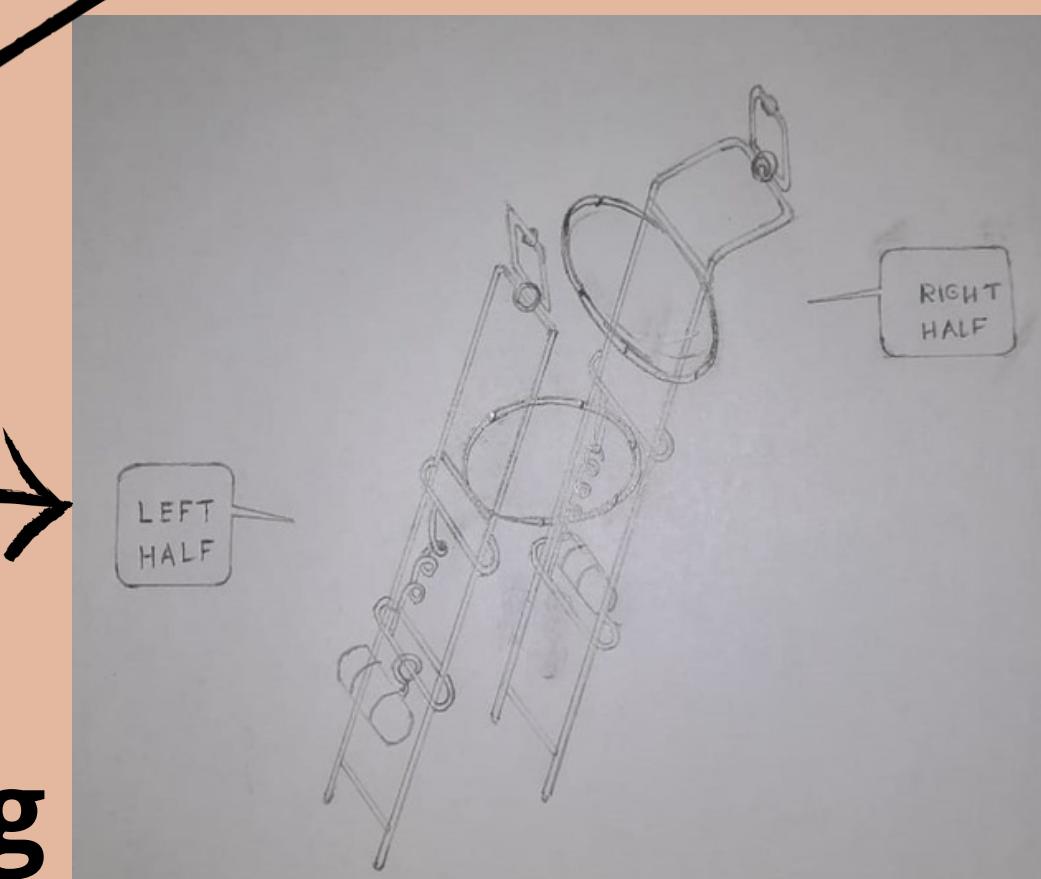
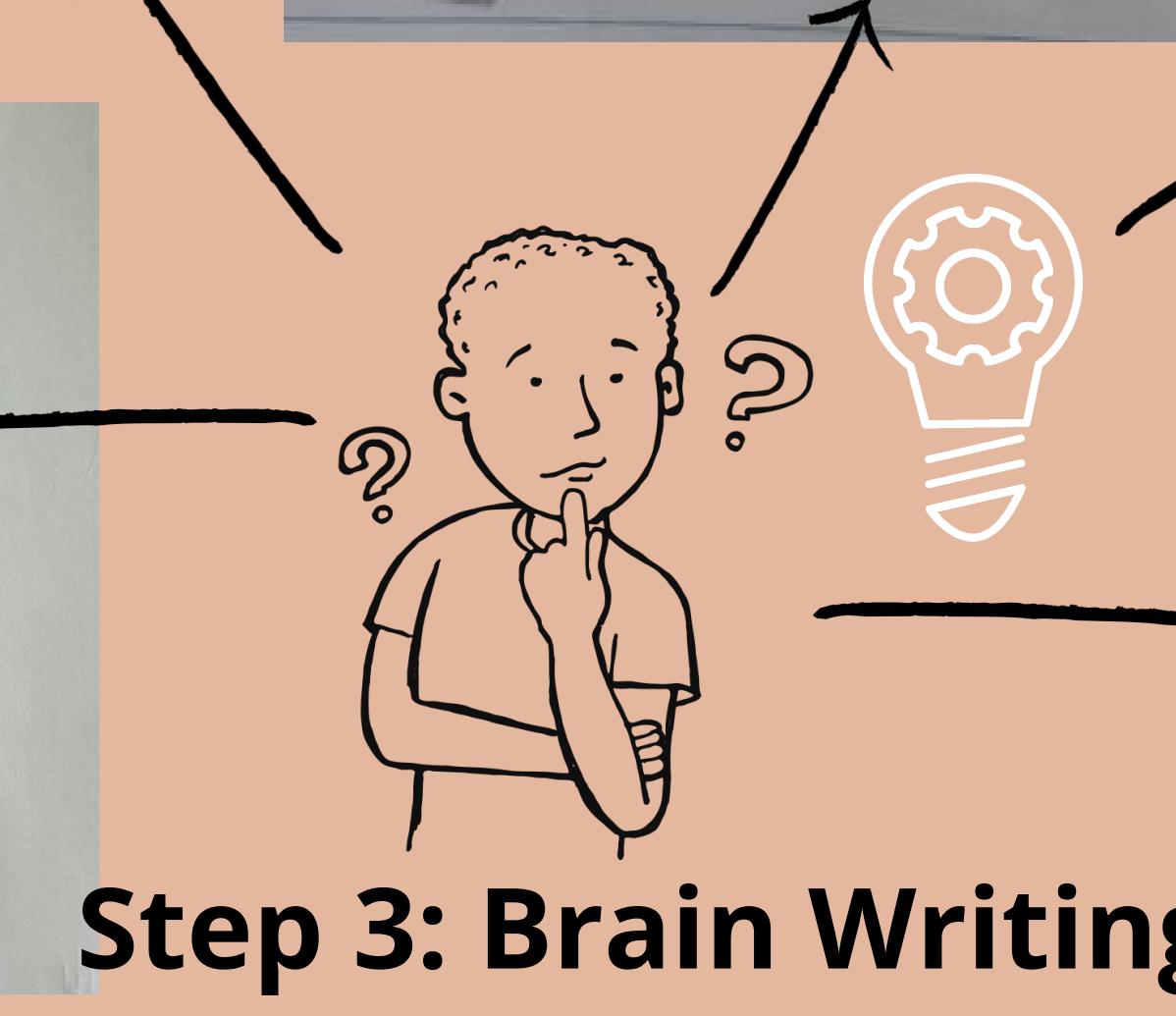
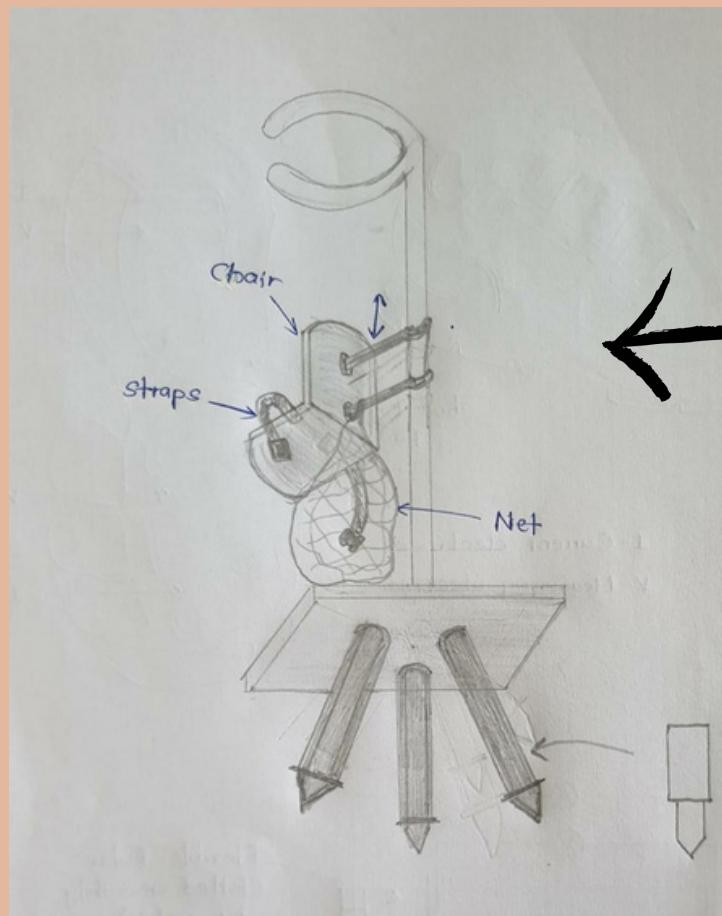
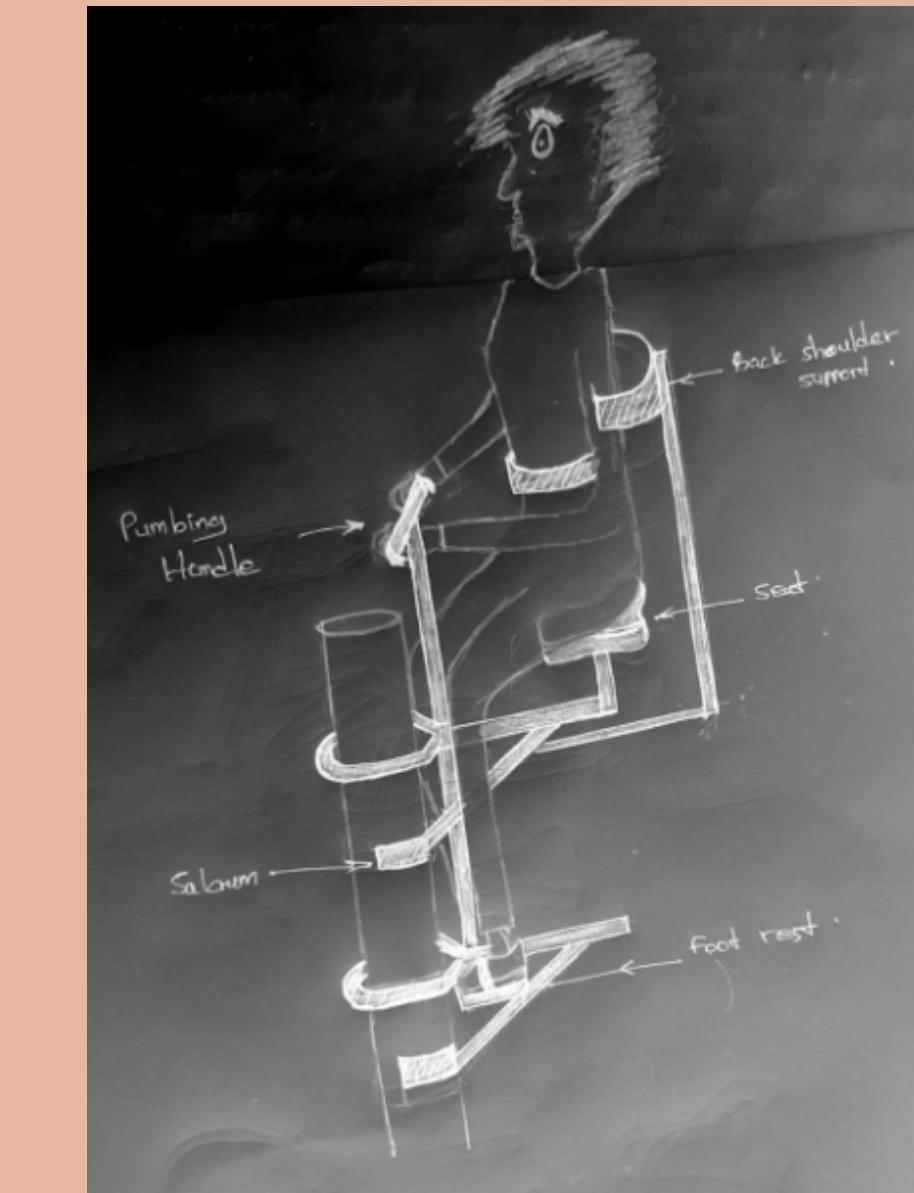
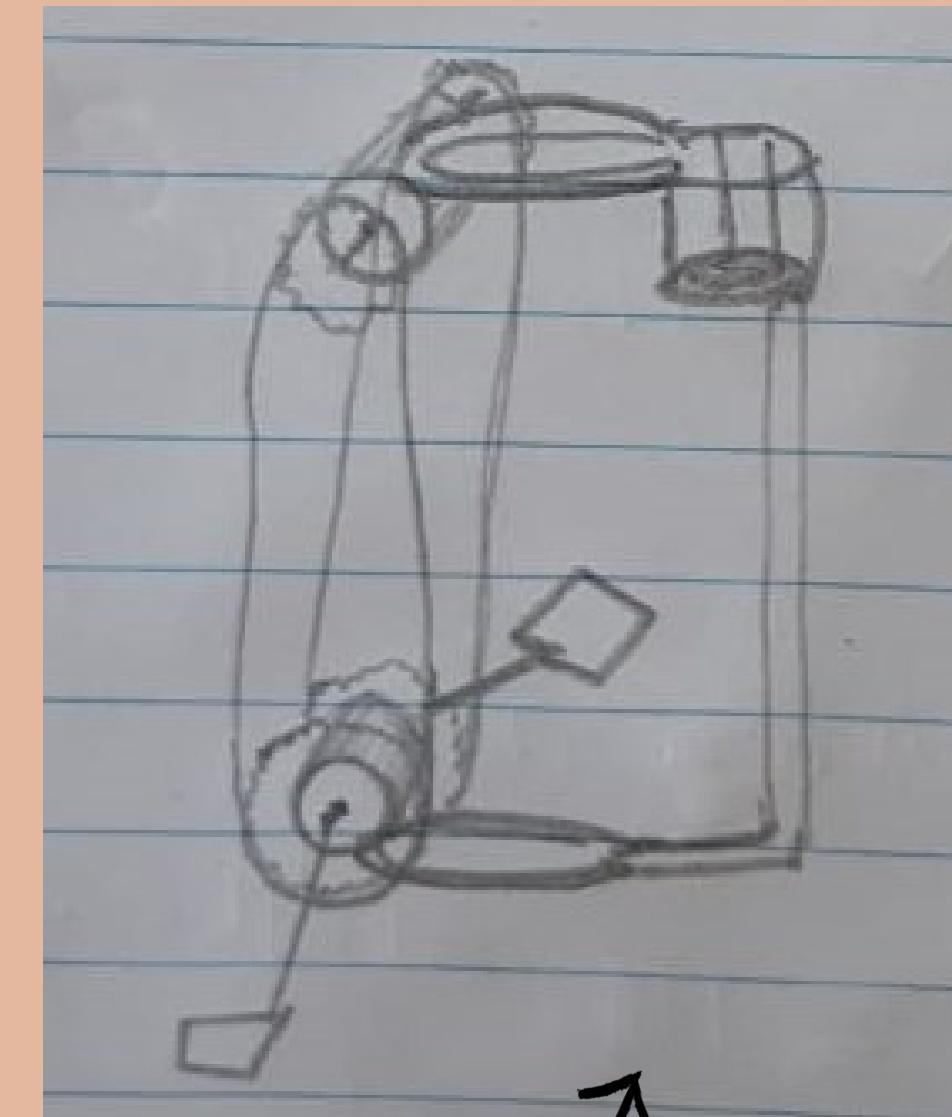
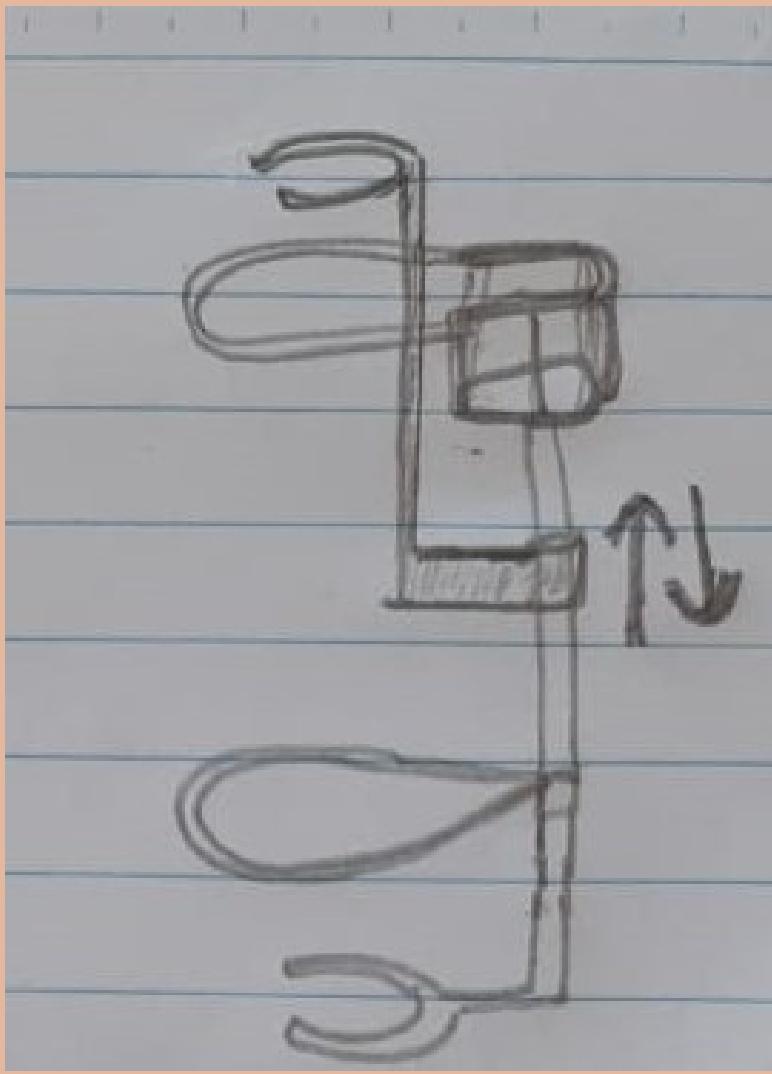
Assemble of parts	Material for body	Additional Accessories
Pin	Aluminium alloy	Add to device signal
Hinge	steel	Light source
Force fit	Carbon fiber	Collapse handle
Foldable	polyurethane	
Strap sticker	Carbon steel	
Quick on/off buckles	wood	

Sub problem set 1 -Shock absorption, A base with high coefficient of friction

Adjustability	Material of adjustable system	Load distribution
Instant push button	Aluminium alloy	To laps
Fabric straps	Stainless steel	To laps
Screw type	Carbon fiber	To hip
Spring and lock	polyurethane	To aid base
	Carbon steel	Ergonomically shaped platform
	Nylon/Neoprene	

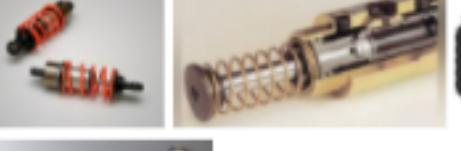
Sub problem set 2 - Lightweight, Inculcated body, Industrial look

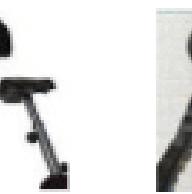
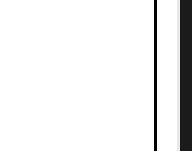
Sub problem set 3 - Loading capacity, Size adjustment



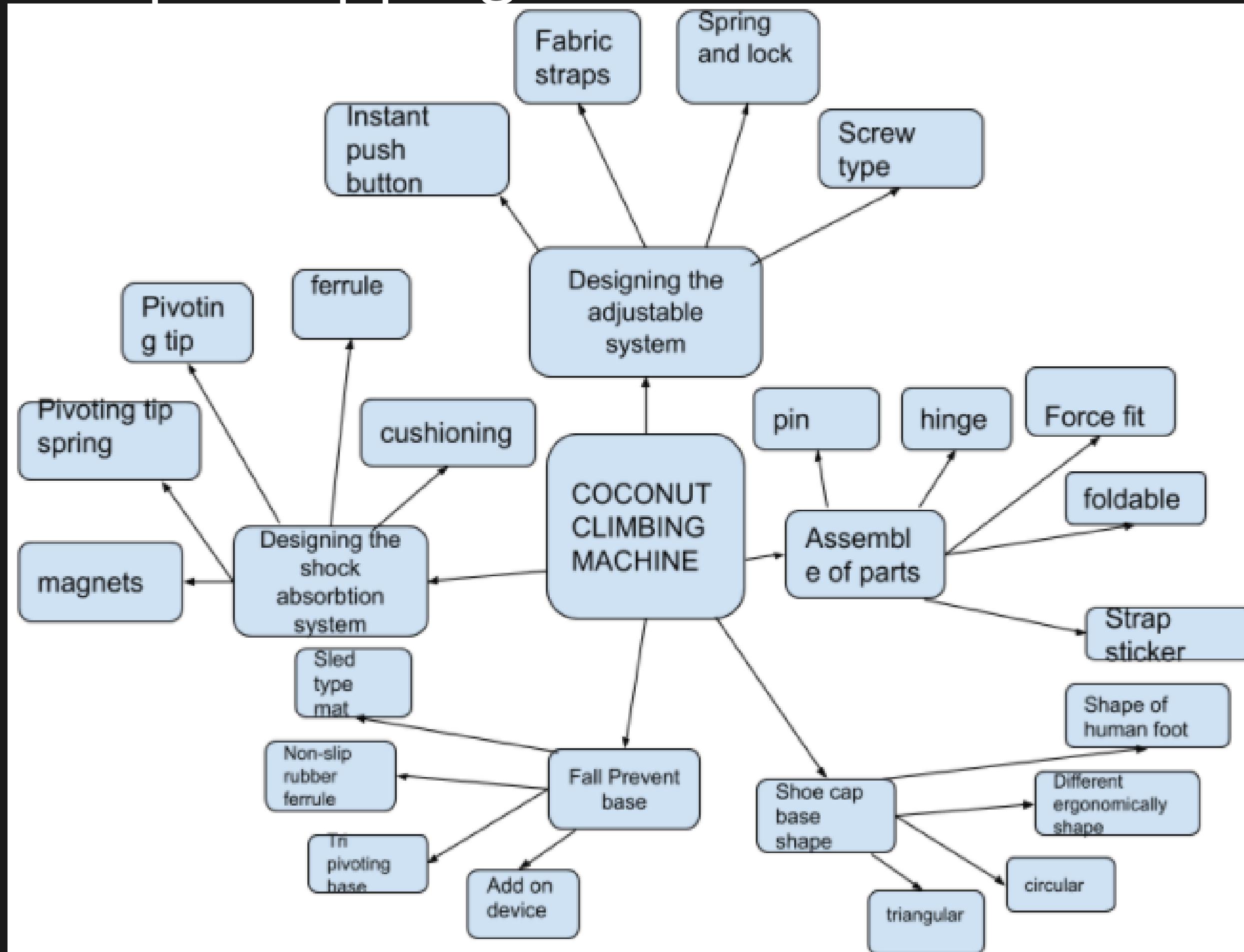
### Step 3: Brain Writing

# Step 4: Morphological Chart

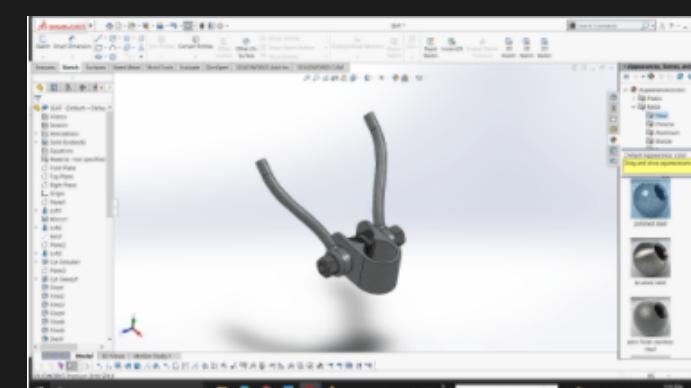
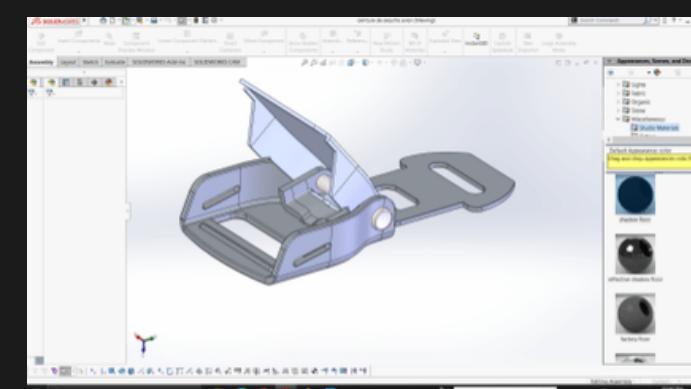
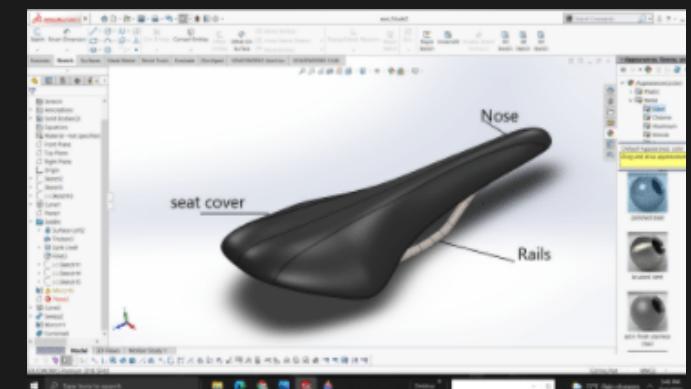
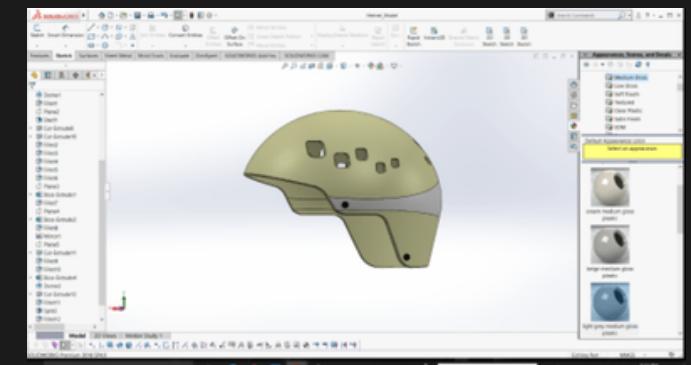
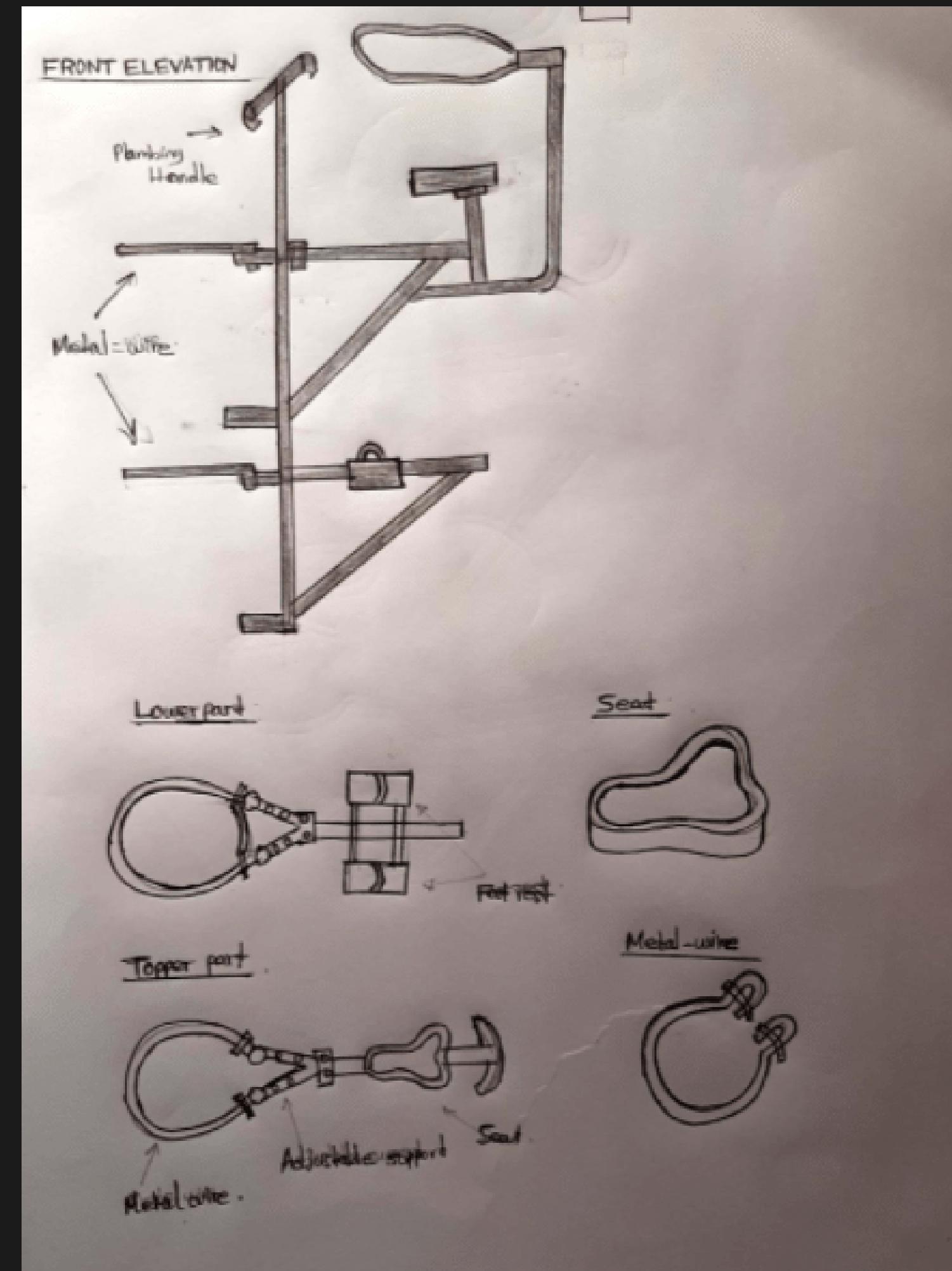
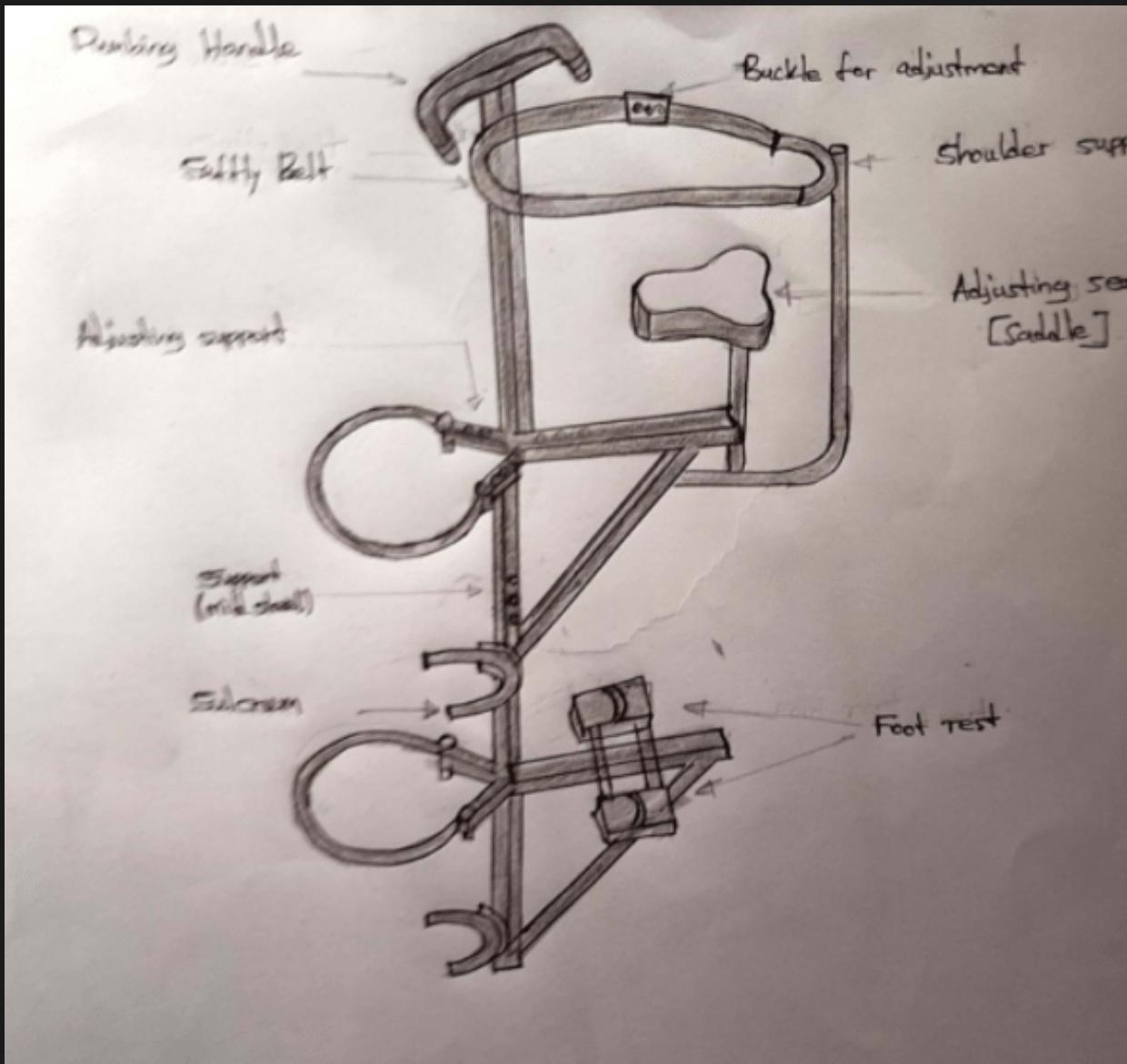
Functions	Options
Seat style	   
Seat metal	 <p>Lather , Plastic, Canvas, Rubber, Cloth</p>
Adjustable size	
Shock absorption	                  
Handle	 
Footrest	   

Metal wire	   
Safety belt	    
Shoulder support	 
Safety helmet	    
Screw and nut	     
Light weight material	    
High loading capacity material	    
Aesthetic Offerings	Team logo , choice of colors

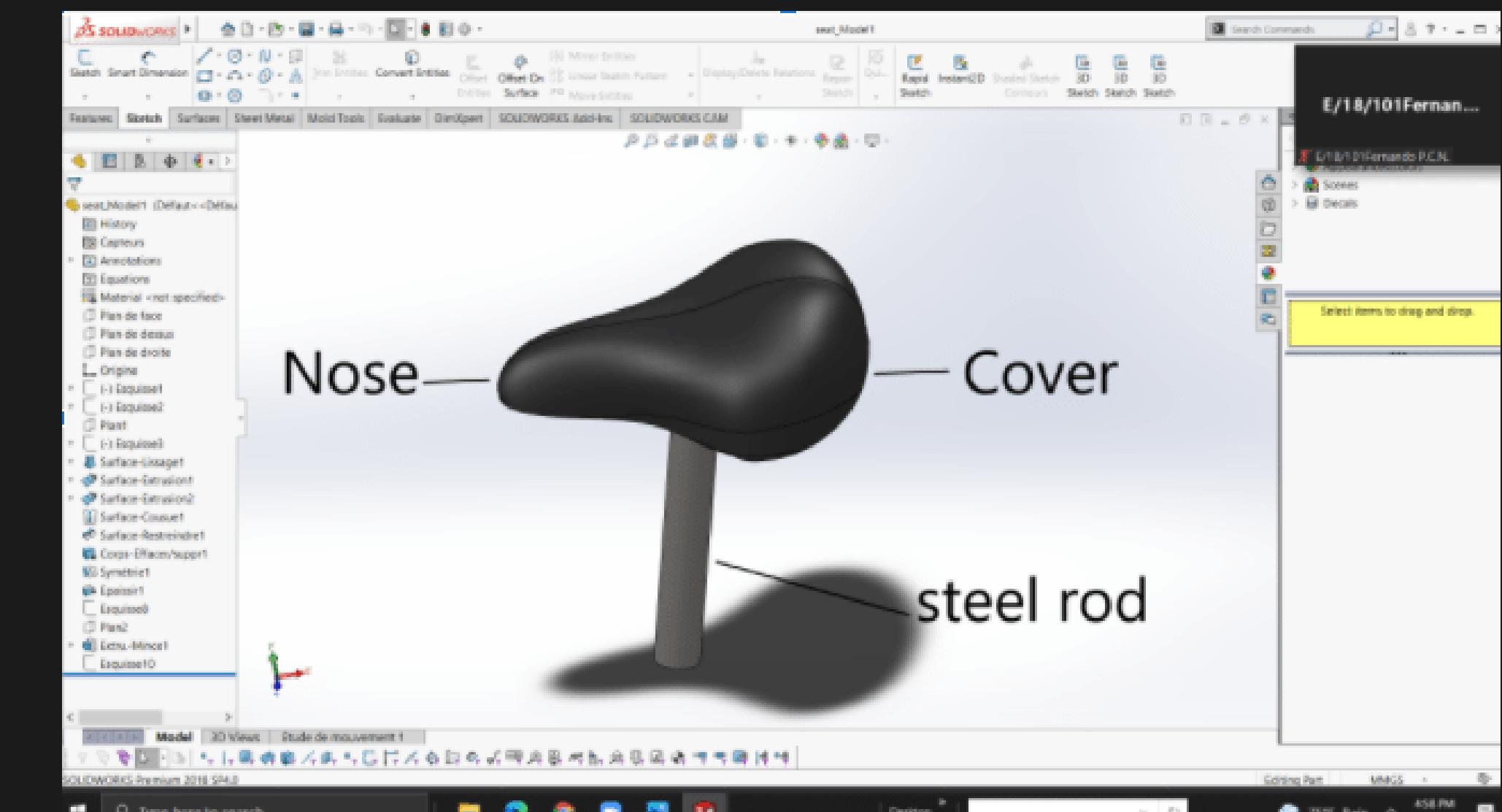
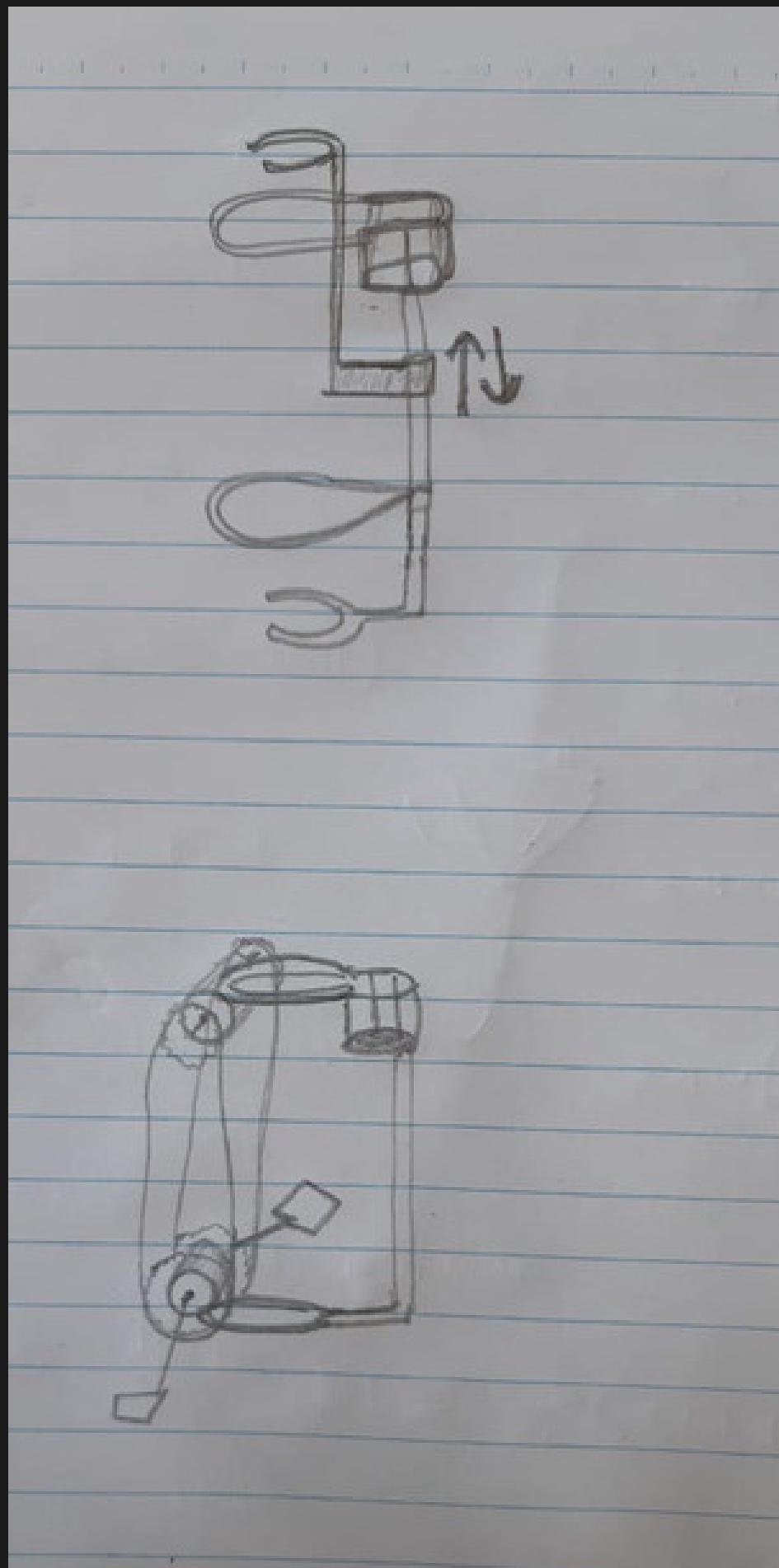
# Step 5: Concept mapping



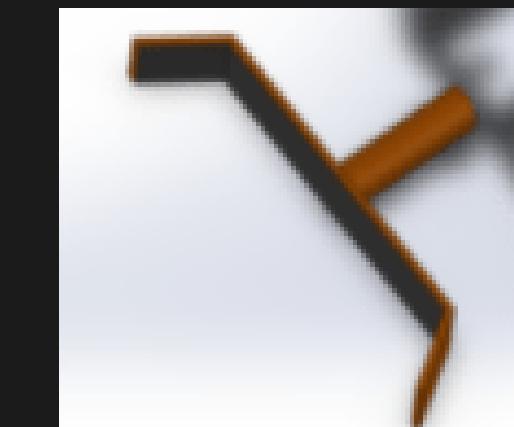
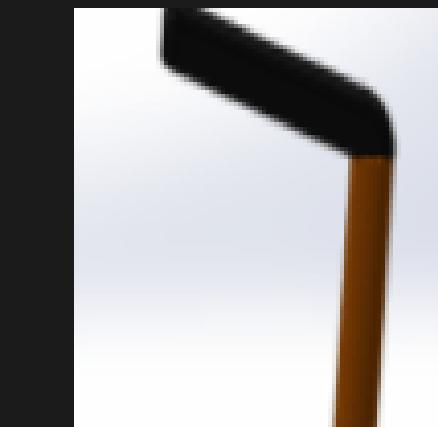
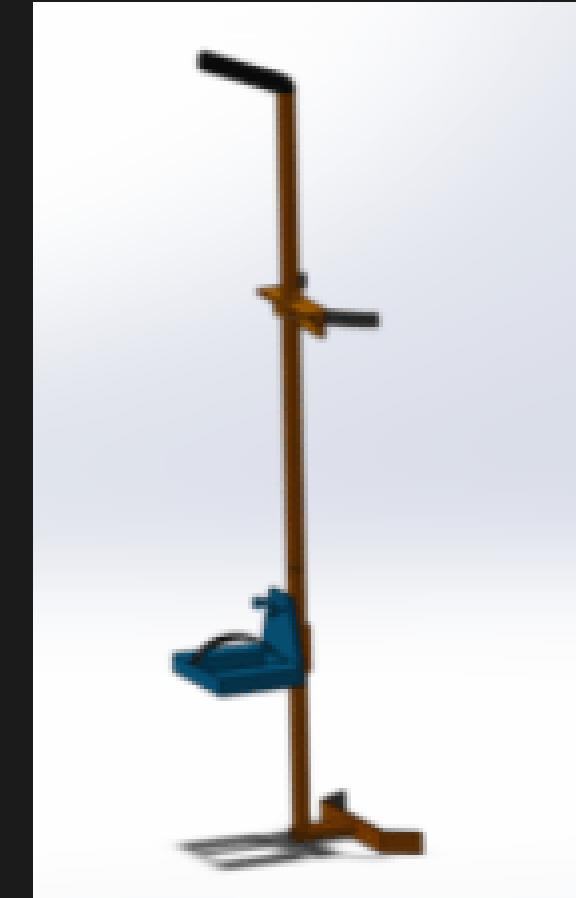
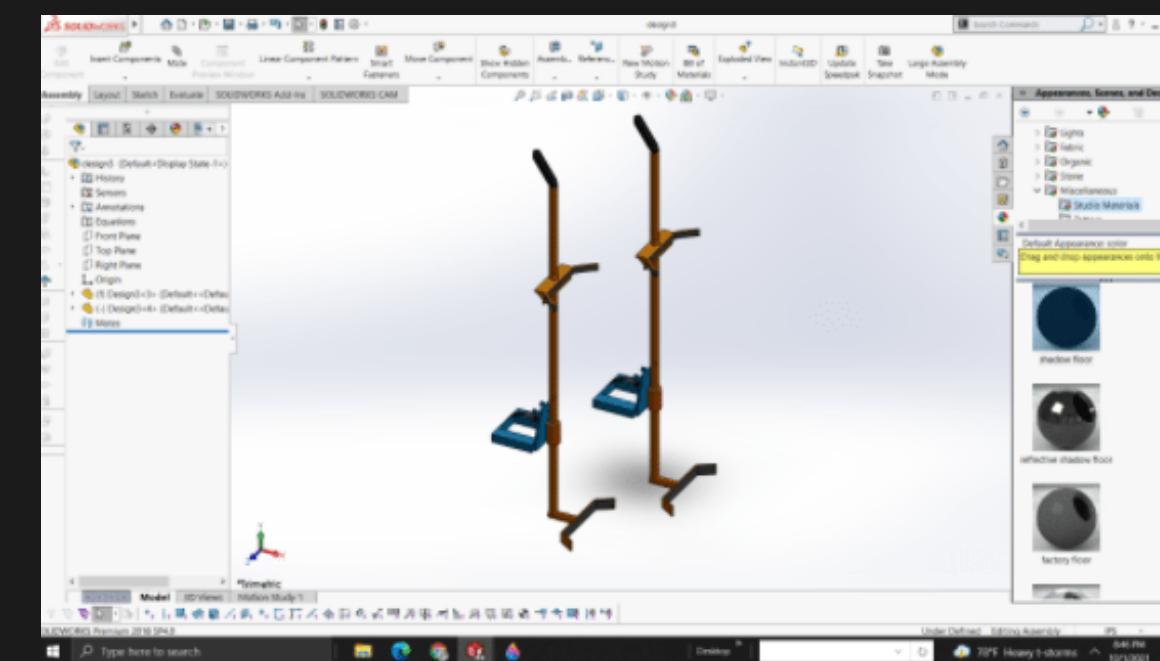
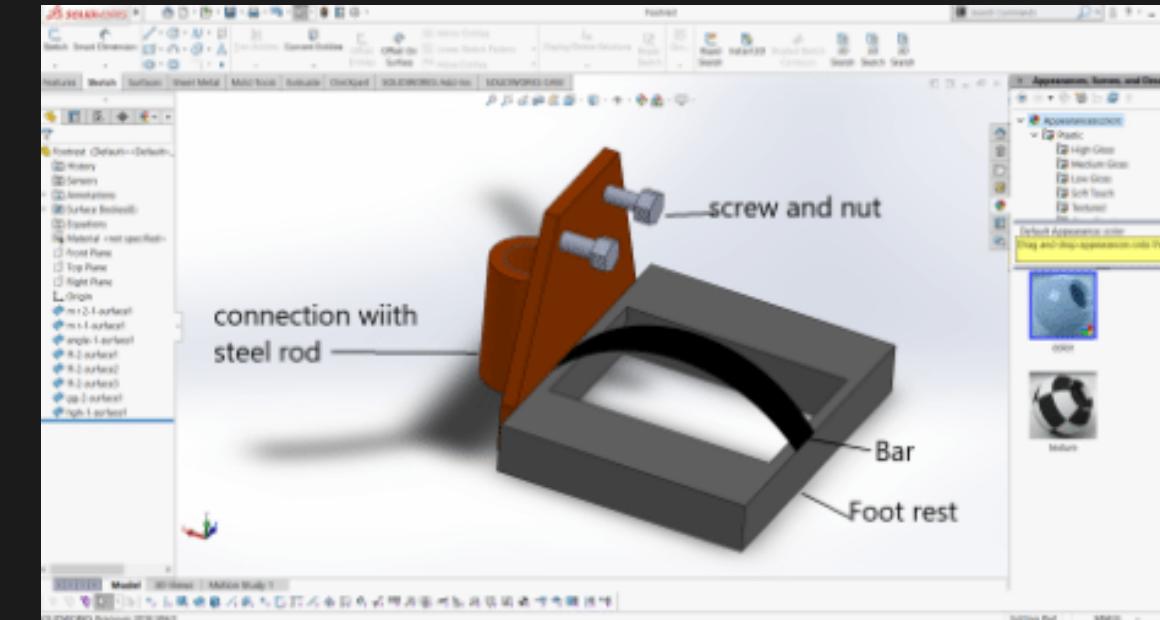
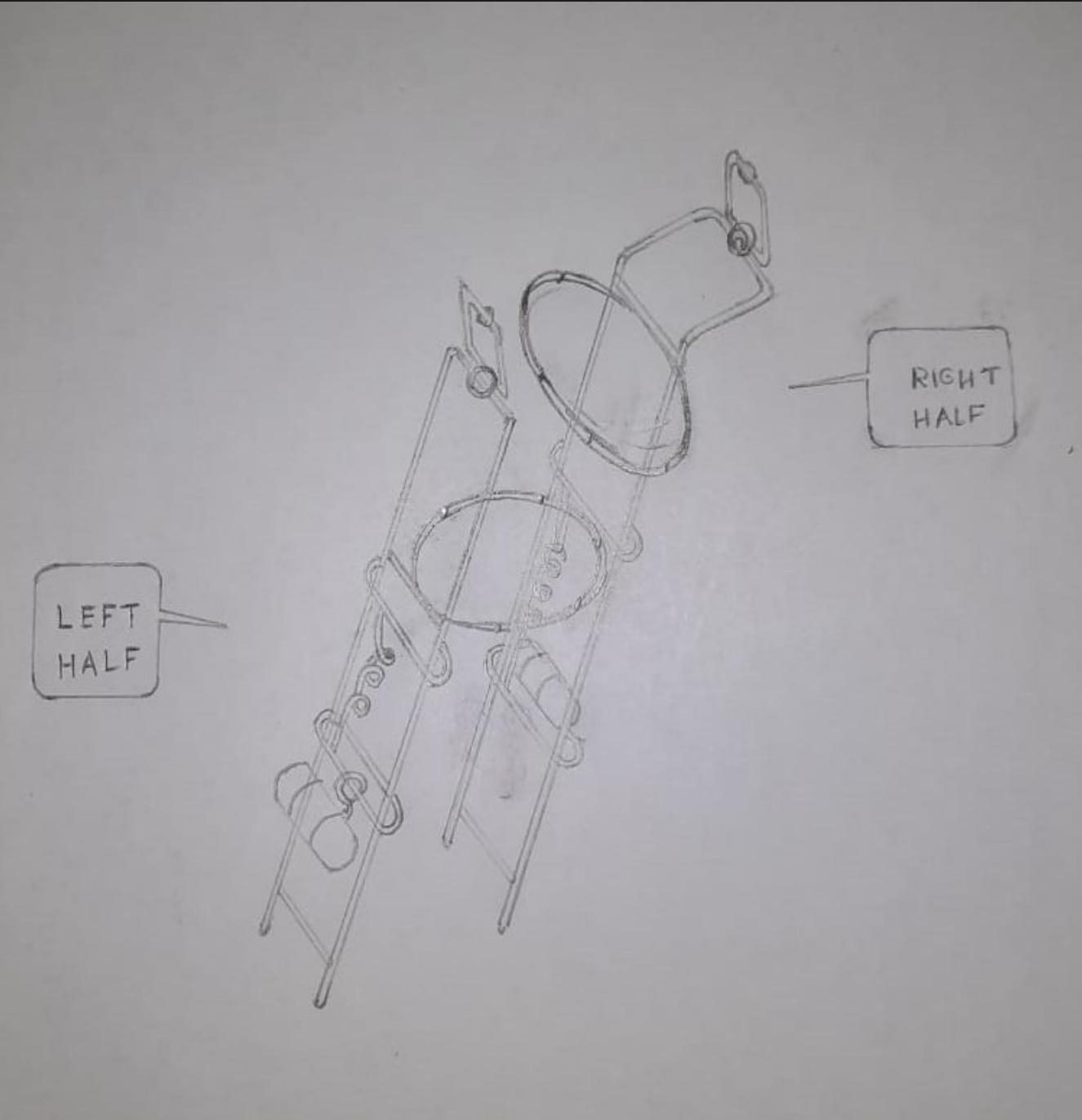
# Concept- Design 1



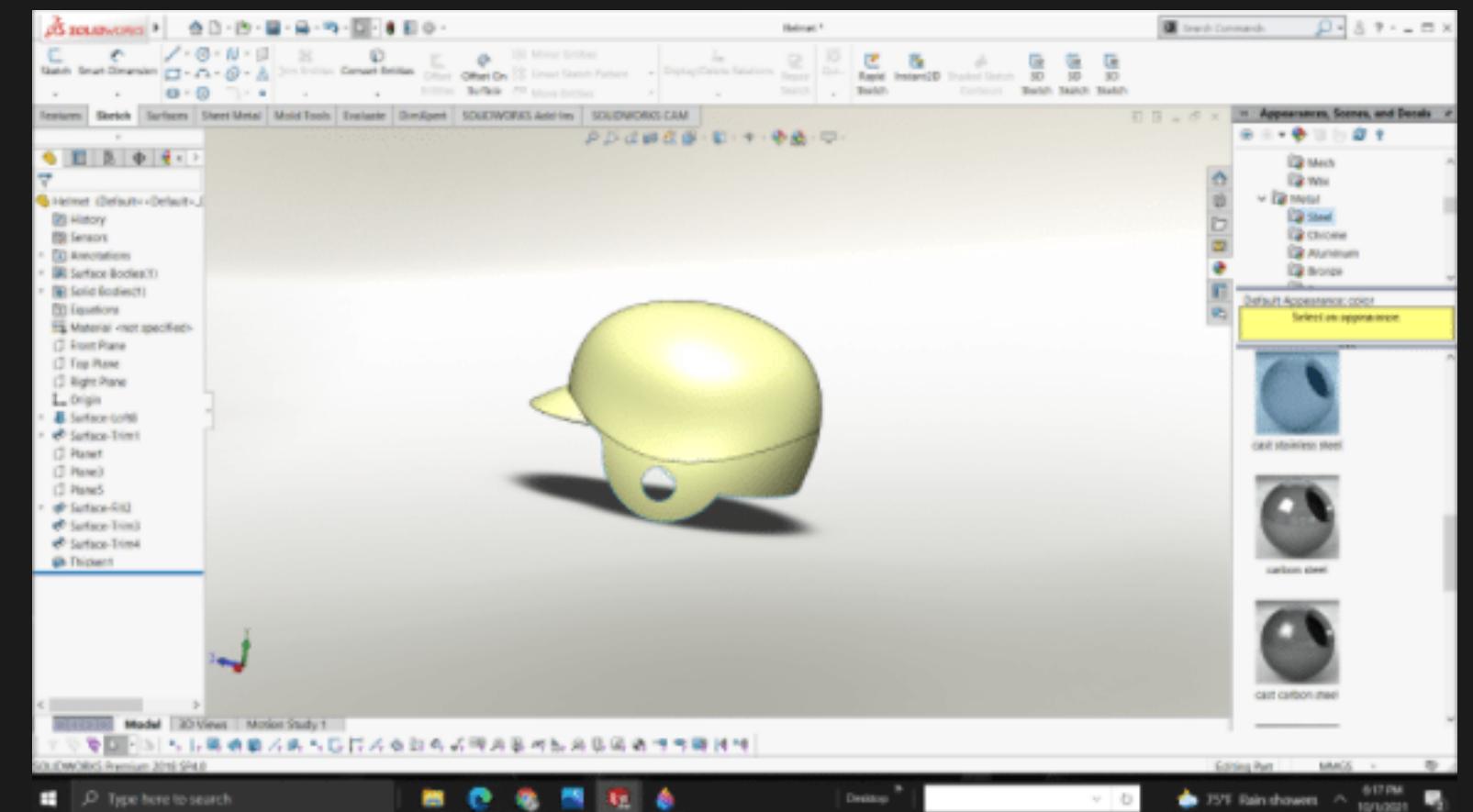
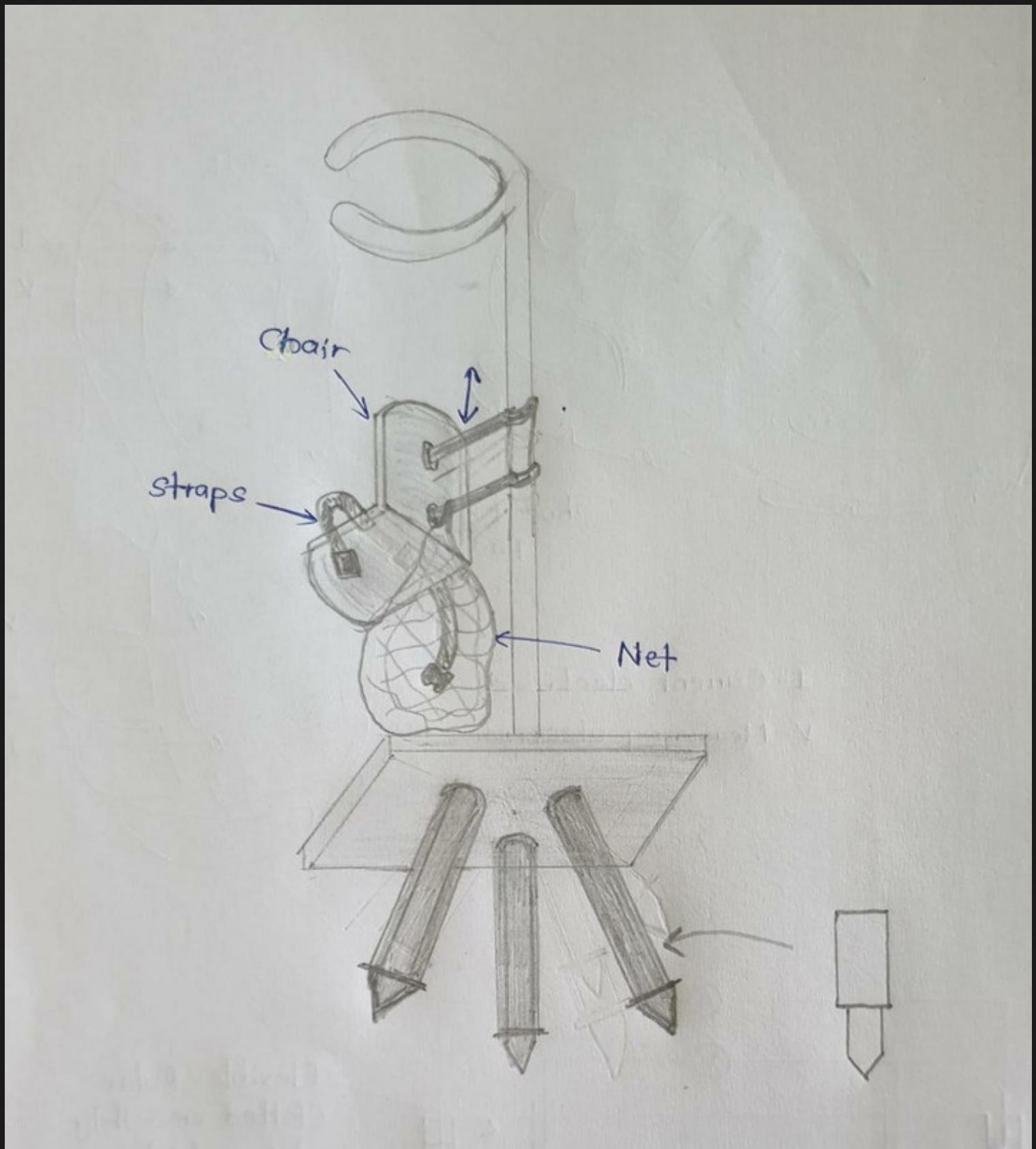
# Concept- Design 2



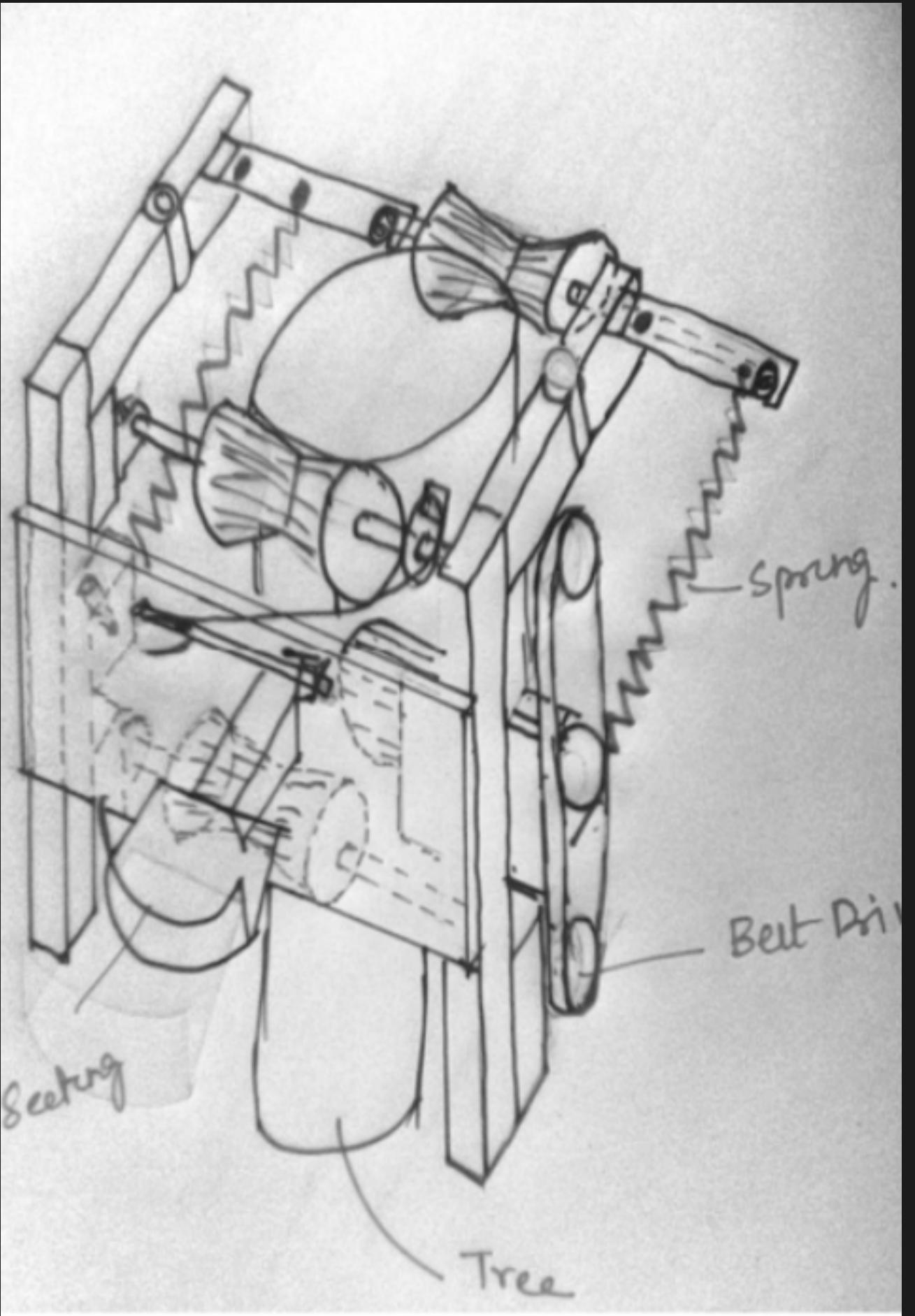
# Concept- Design 3



# Concept- Design 4



# Concept- Design 5



# 5. Concept Selection



# Concept screening

No	Selection Criteria	Concepts				
		Design 1	Design 2	Design 3	Design 4 Reference	Design 5
1	Ease of Handling	0	+	-	0	0
2	Maintenance	0	0	+	0	-
3	Easy of manufacture	+	-	+	0	-
4	Skill Required	0	+	-	0	+
5	Ease of installation	+	0	+	0	-
6	Stability	+	+	-	0	+
7	Transportation	+	0	+	0	0
8	Weight	0	0	+	0	0
9	Power consumption	+	-	+	0	-
10	Speed	0	+	-	0	+
11	Overall dimensions	-	0	+	0	-
12	Manufacturing Cost	+	0	+	0	-
13	Safety	+	+	-	0	+
Sum of +'s		7	5	8	0	4
Sum of 0's		5	6	0	13	3
Sum of -'s		1	2	5	0	6
Net Score		6	3	3	0	-2
Rank		1	2	2	4	5
Continue?		Yes	Combine	Yes	Combine	No

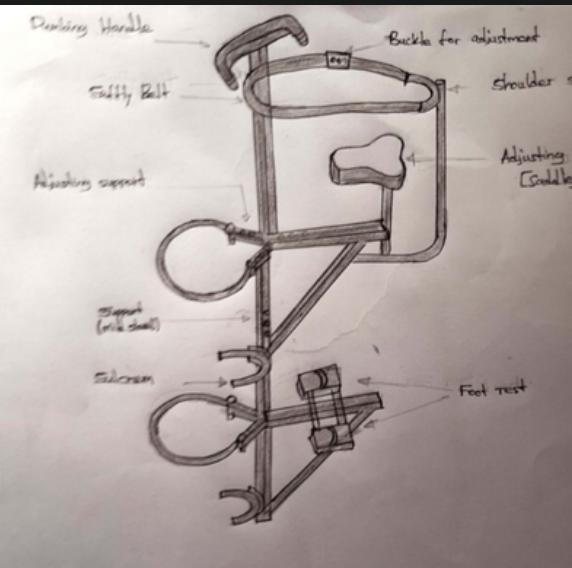
Better than reference	"+"
Same as	"0"
Worse than reference	"-"

# Concept Scoring

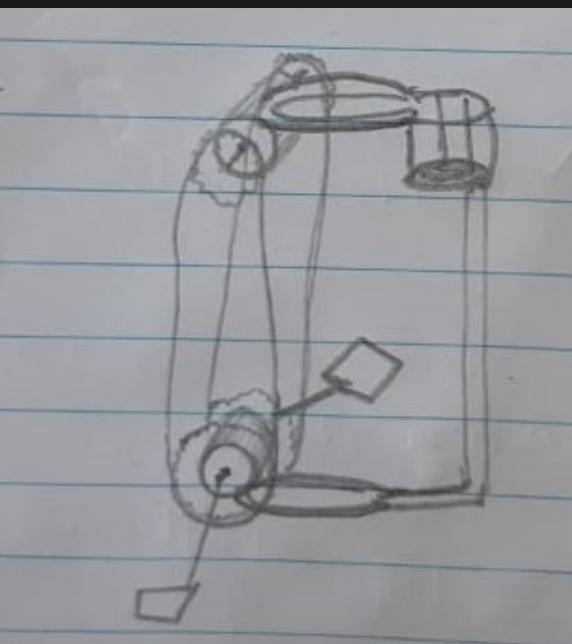
Relative performance	Rating
Much worse than ref	1
Worse than ref	2
Same as ref	3
Better than ref	4
Much better than ref	5

Selection Criteria	Weight%	Concepts							
		Reference		A		B		C	
		Rating	Weigh ted Score	Rating	Weight ed Score	Rating	Weight ed Score	Rating	Weigh ted Score
Manufacturing Cost	20	3	0.6	4	0.8	2	0.4	5	1
Overall dimensions	10	3	0.3	4	0.4	2	0.2	4	0.4
Speed	5	5	0.25	3	0.15	4	0.2	1	0.05
Maintenance	3	3	0.09	4	0.12	2	0.06	4	0.12
Ease of installation	7	3	0.21	4	0.28	2	0.14	5	0.35
Power consumption	5	3	0.15	3	0.15	1	0.05	4	0.2
Ease of Handling	5	3	0.15	3	0.15	3	0.15	1	0.05
Skill Required	8	4	0.32	3	0.24	2	0.16	1	0.08
Stability	7	3	0.21	5	0.35	4	0.28	1	0.07
Weight	10	3	0.3	4	0.4	1	0.1	5	0.5
Transportation	5	3	0.15	4	0.2	2	0.1	4	0.2
Safety	15	3	0.45	5	0.75	4	0.6	1	0.15
Total Score	100	3.18		3.99		2.44		3.17	
Rank	2		1		4		3		
Continue?	No		Develop		No		No		

A →



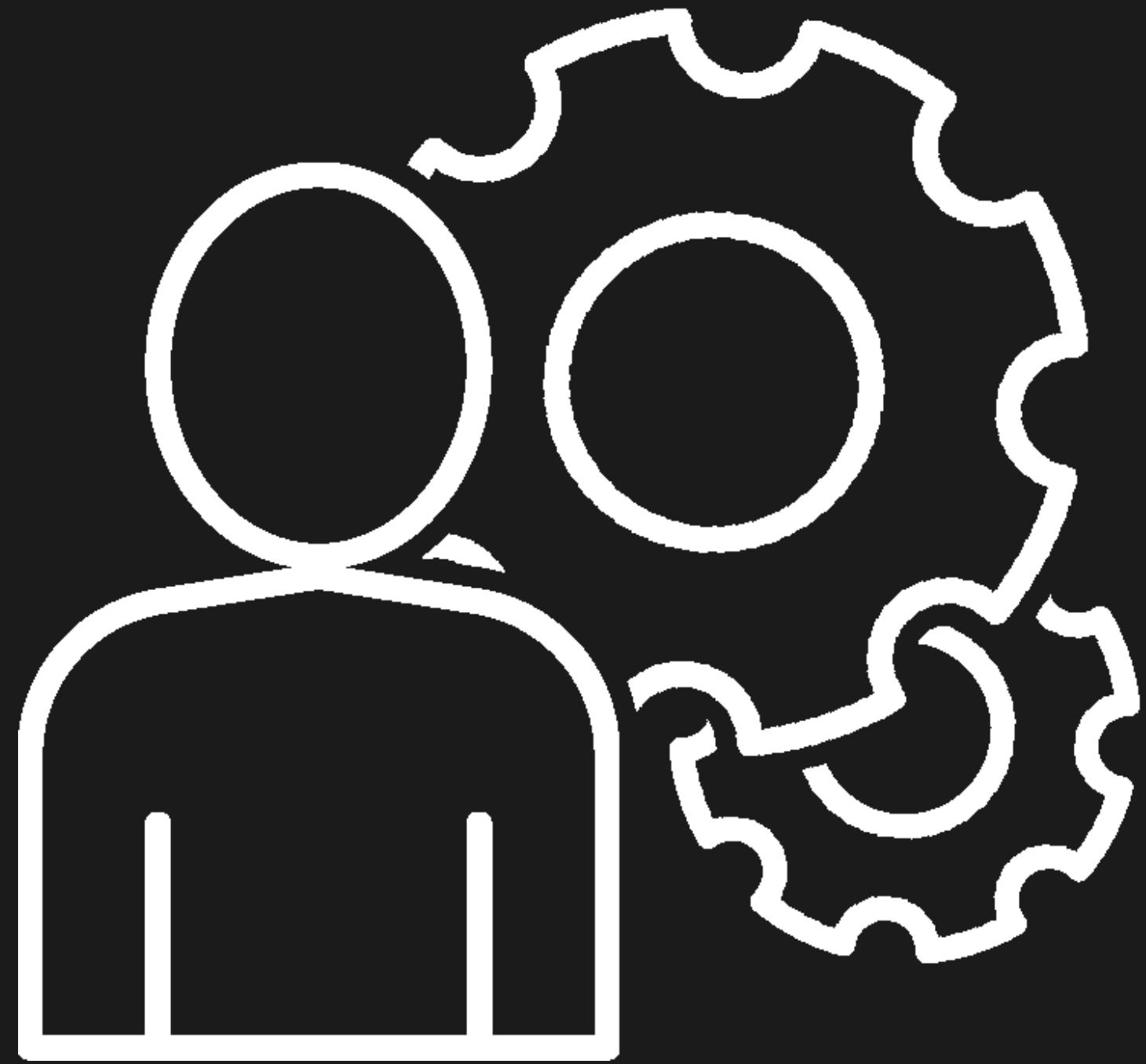
B →



C →



## 6. OUR PRODUCT





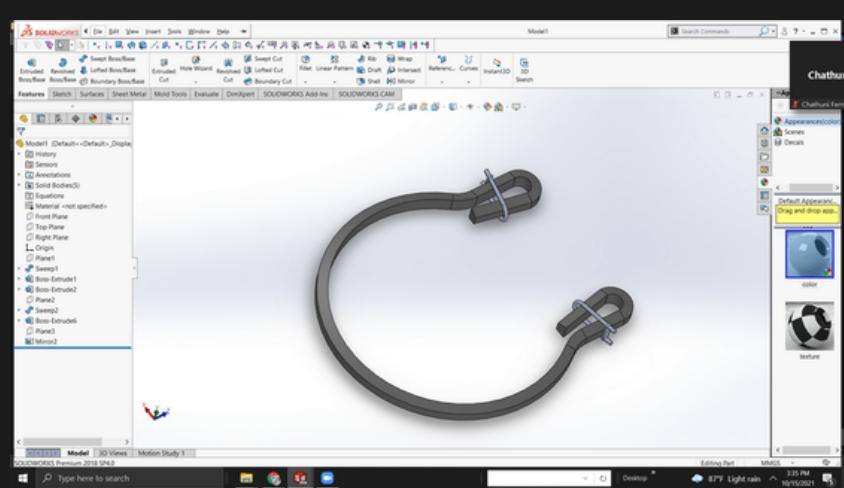
# CoCo Climb

- SAFETY
- TIME SAVE
- EASY USE
- HIGH PRODUCT LIFE
- Top quality products
- Trusted brands
- Budget-friendly

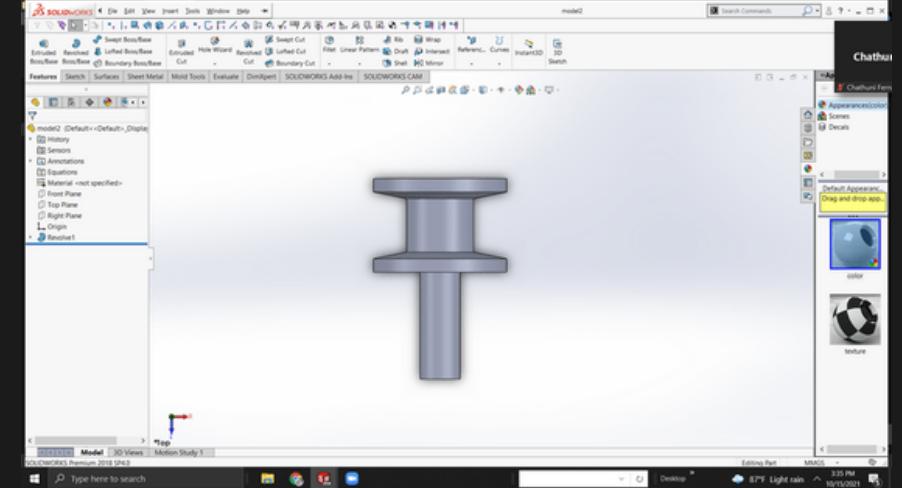
R|R

#

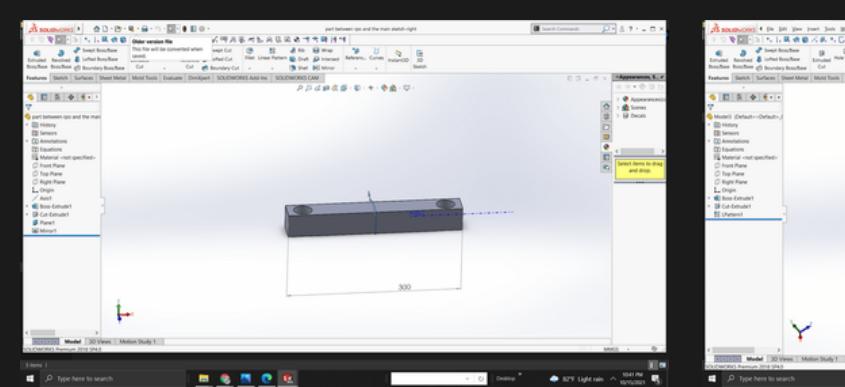




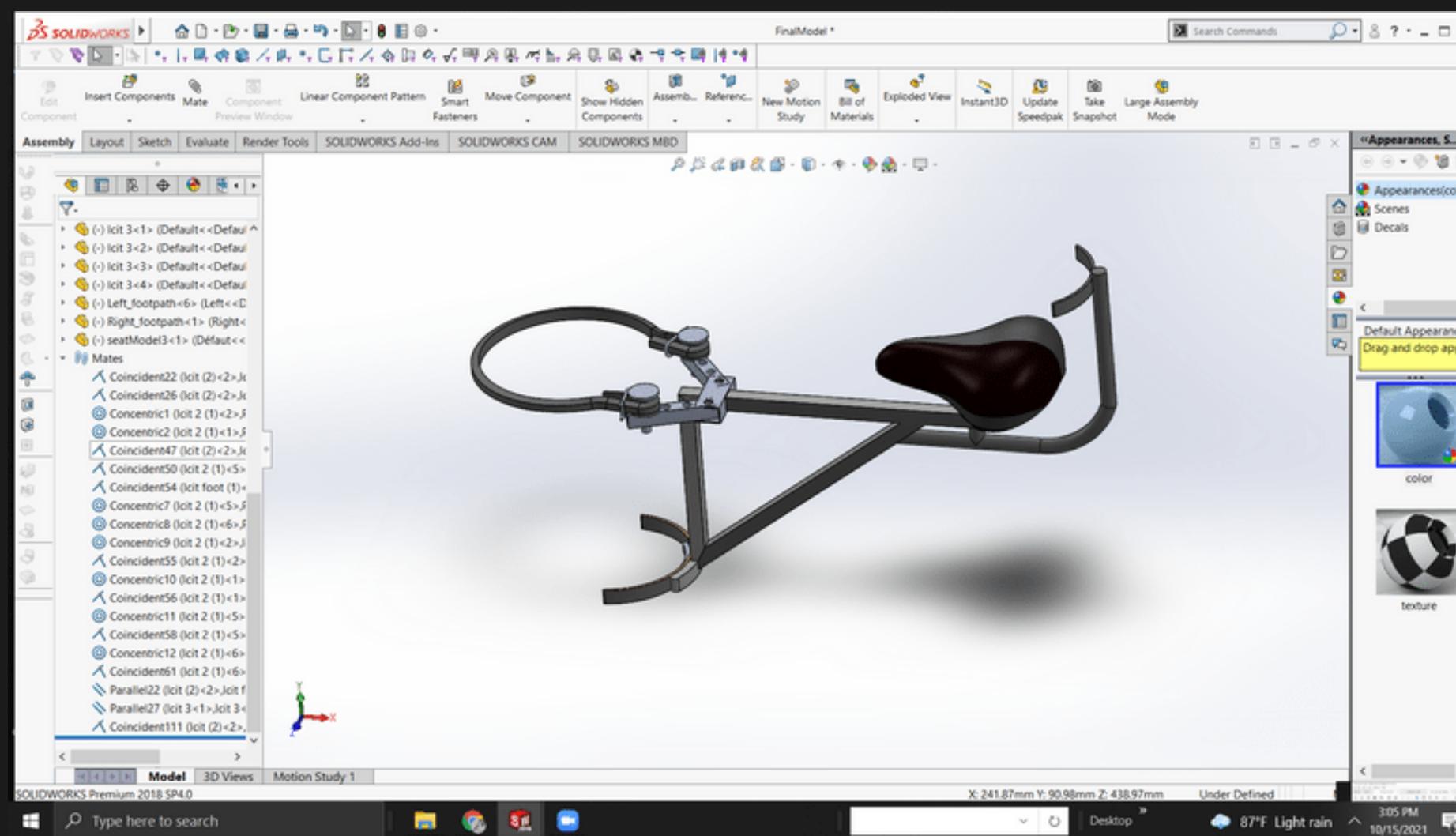
RING



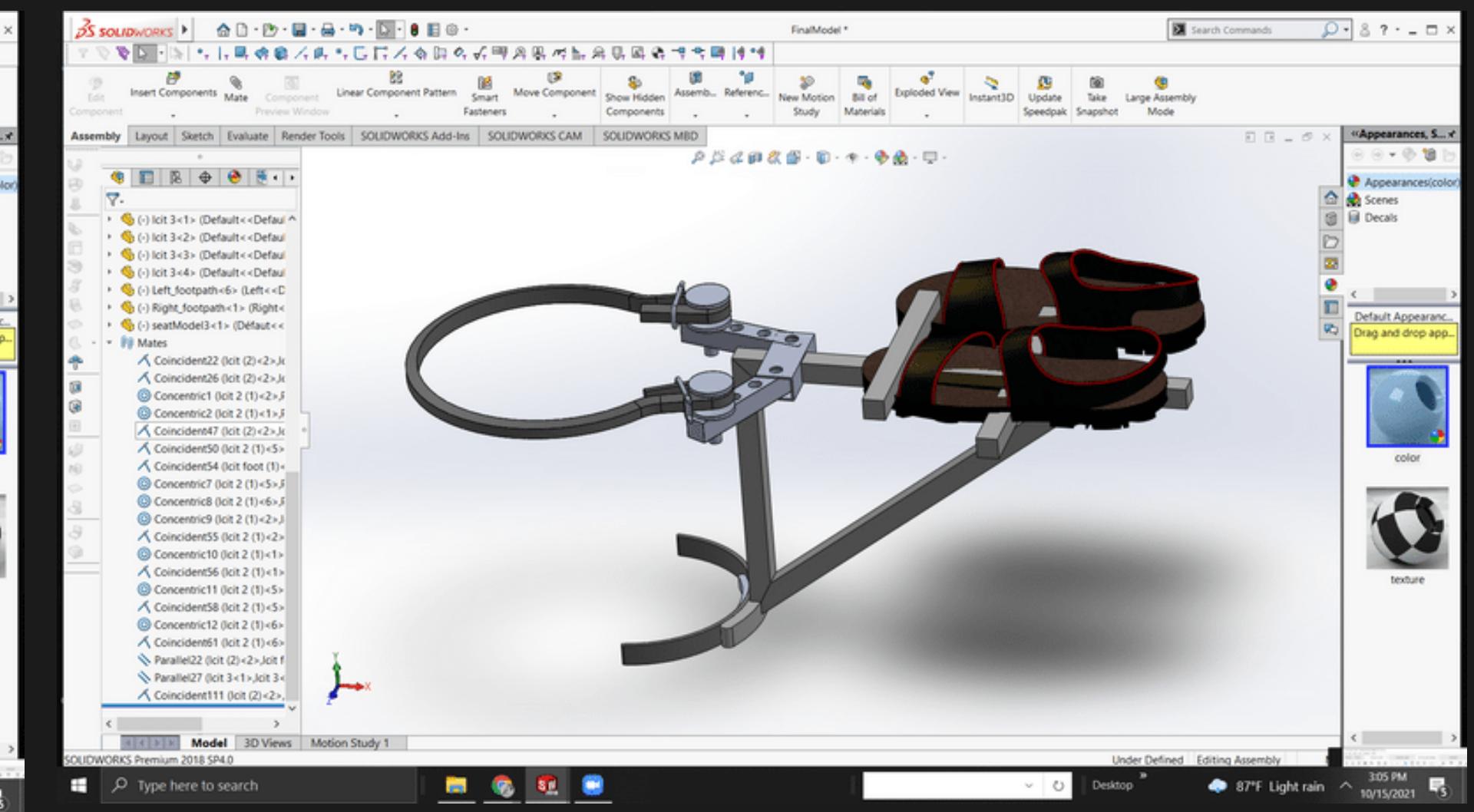
NUT AND BOLT



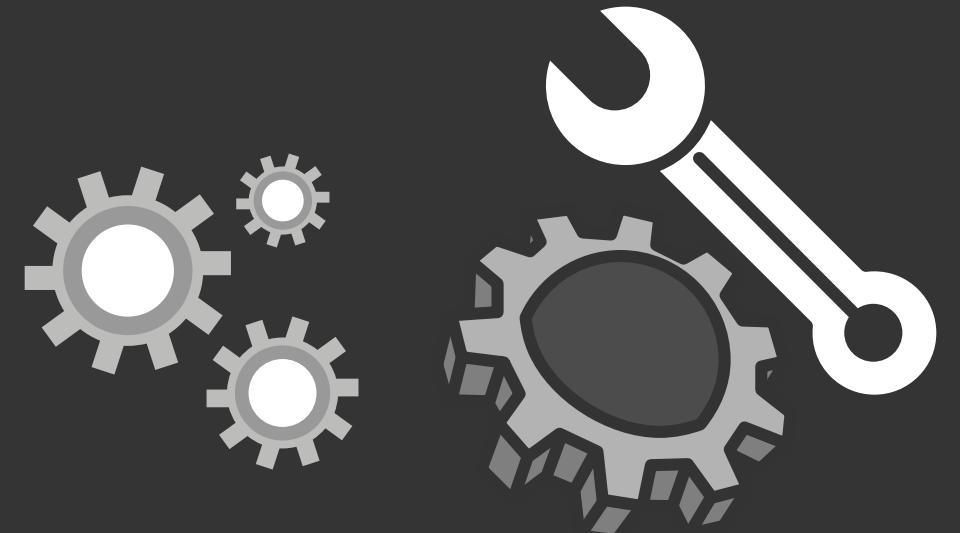
ADJUSTABLE ROD



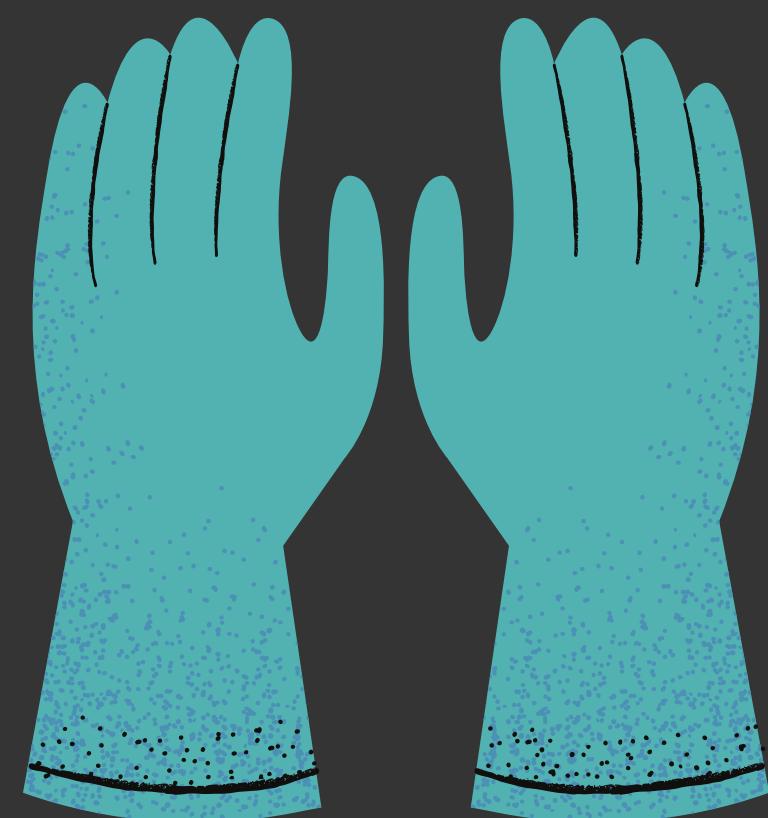
UPPER PART

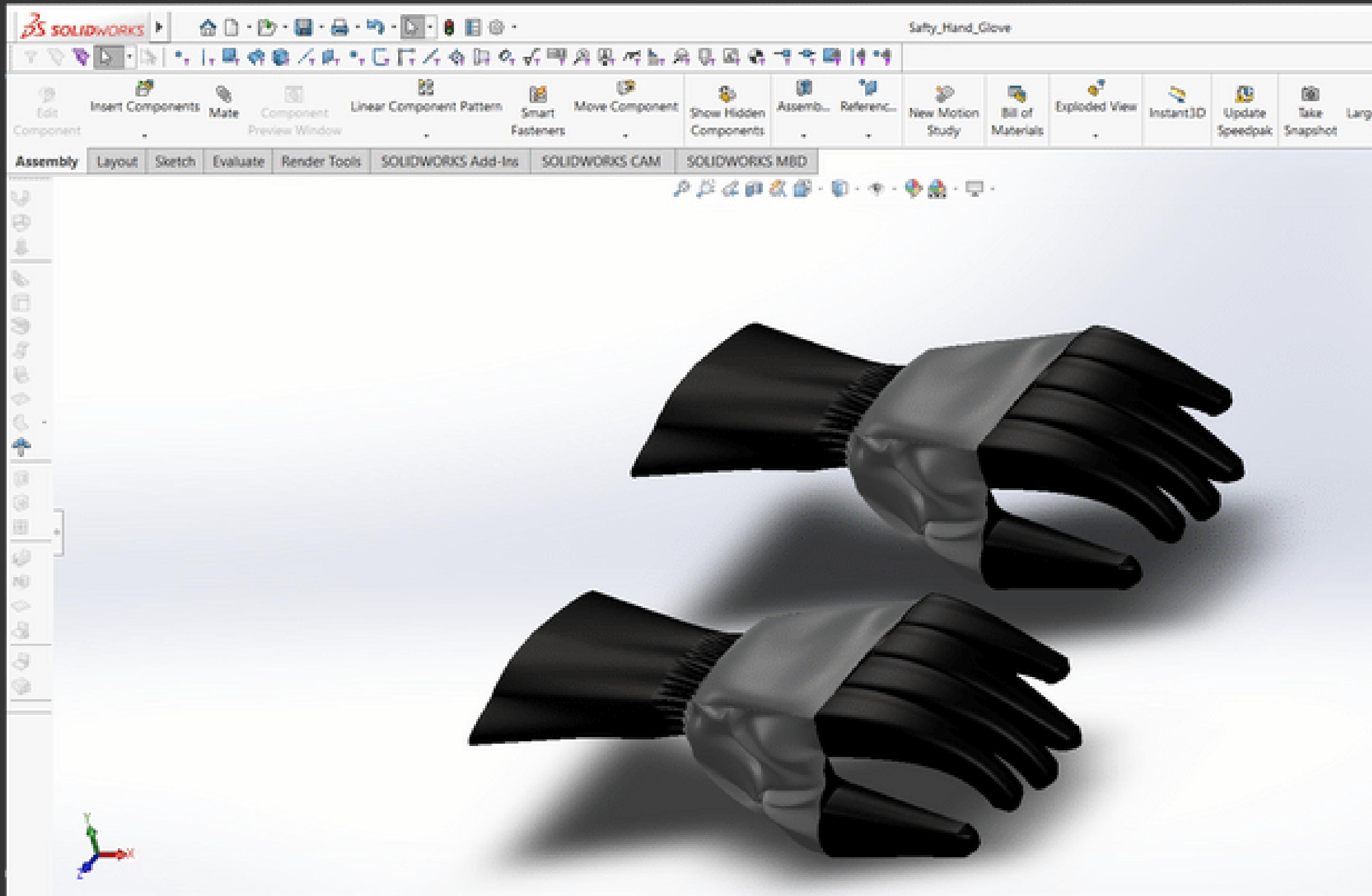


LOWER PART

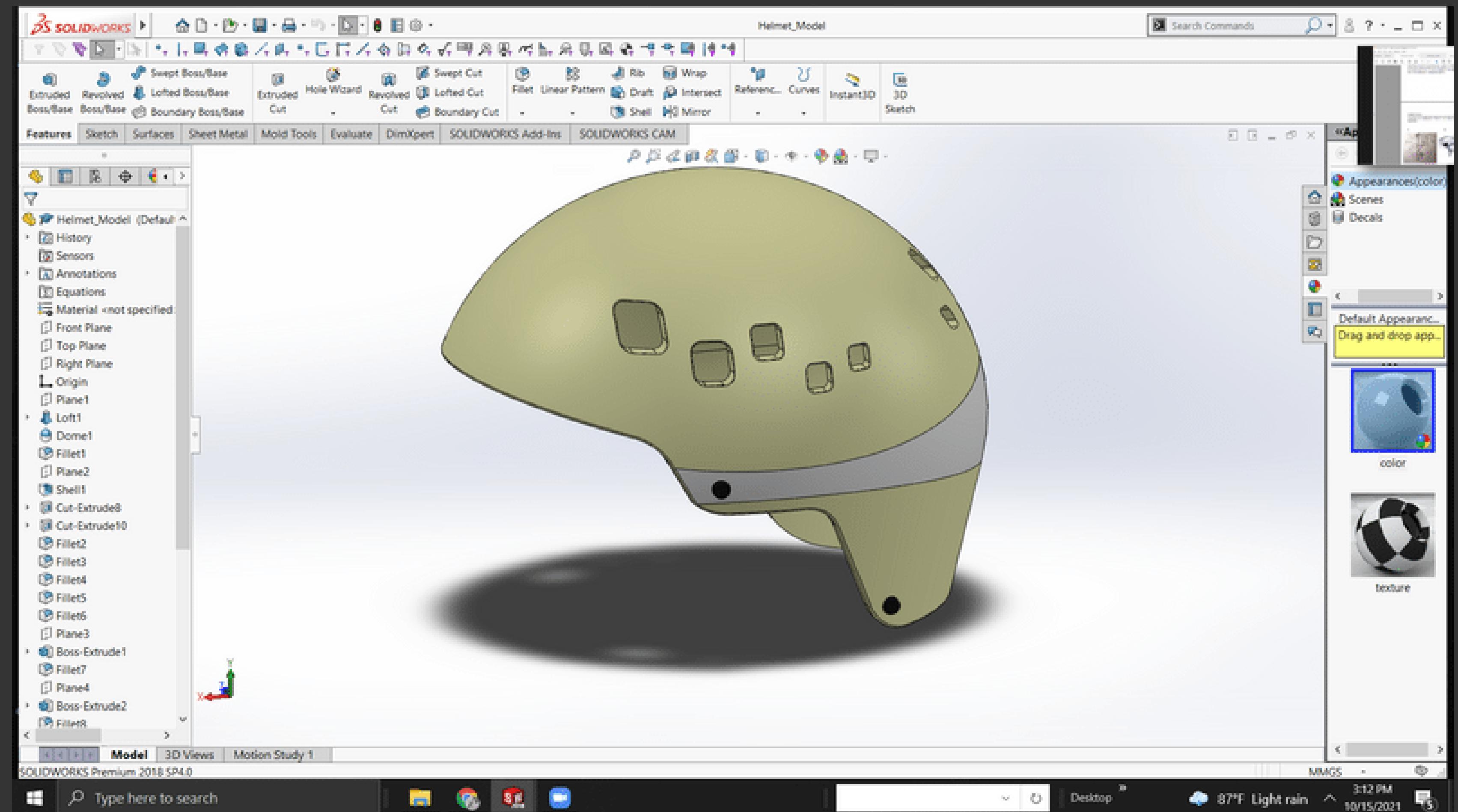


## SAFETY precautions TOOLS

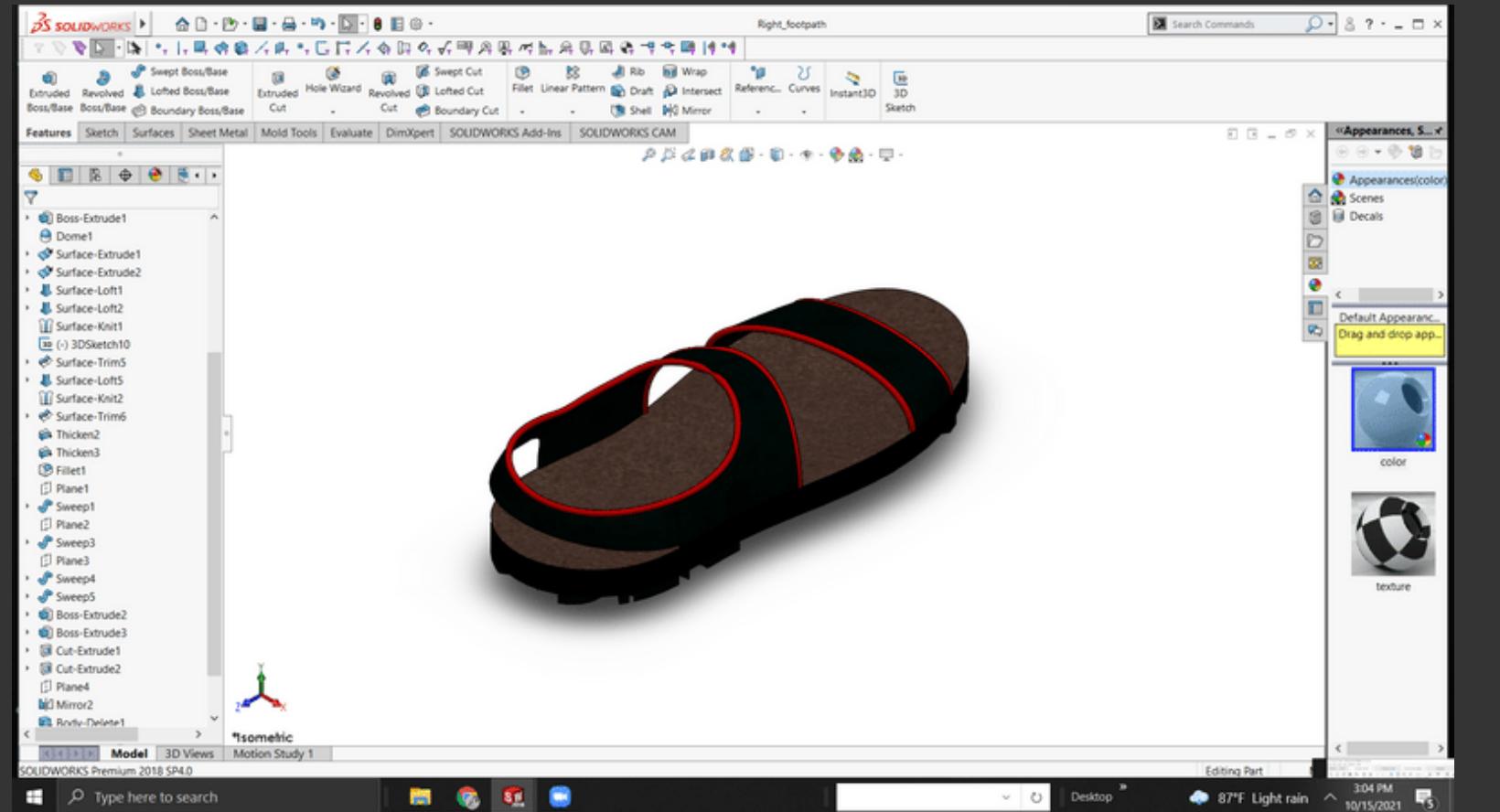




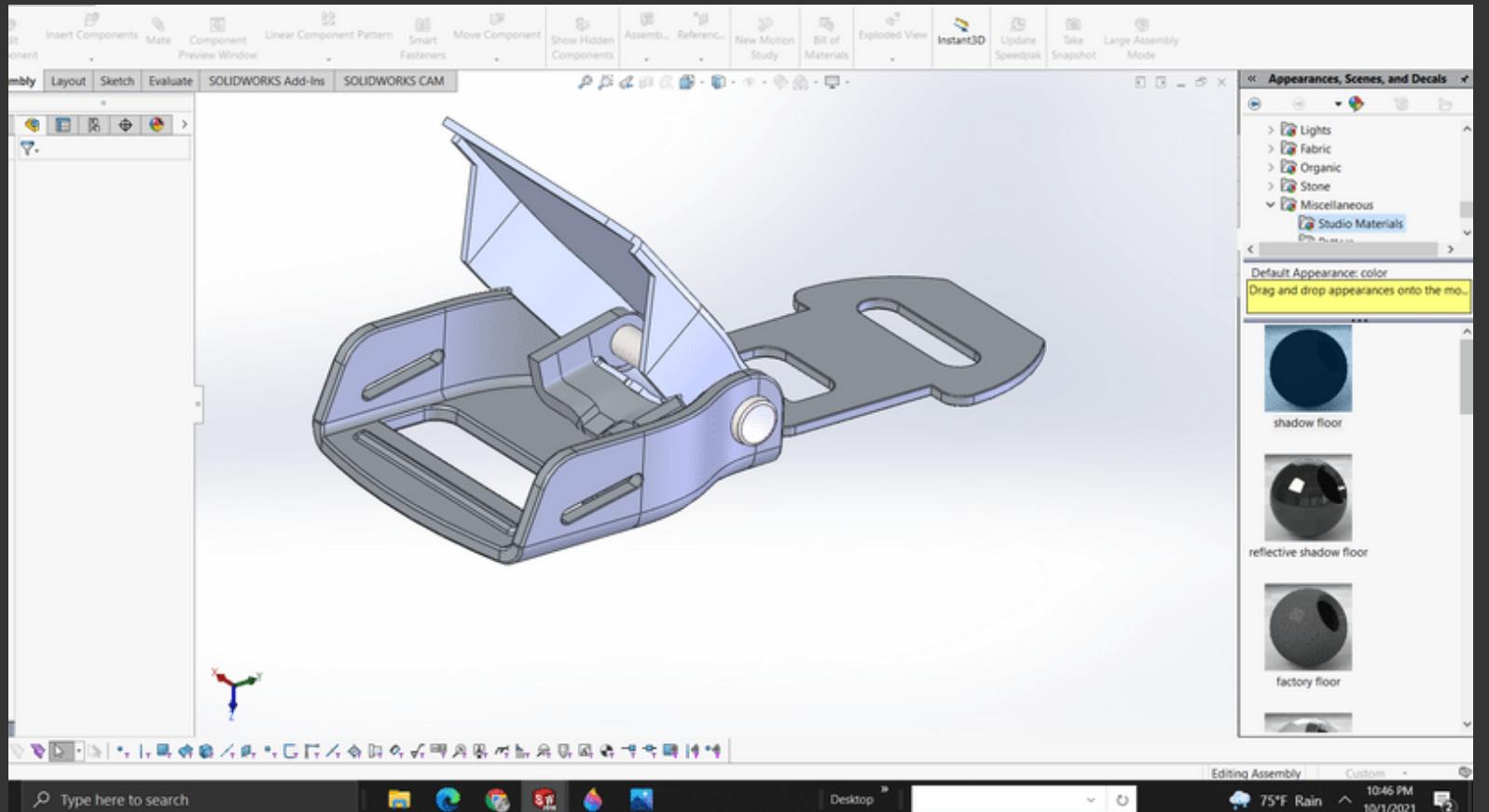
# HAND GLOVES



# SAFETY HELMAT

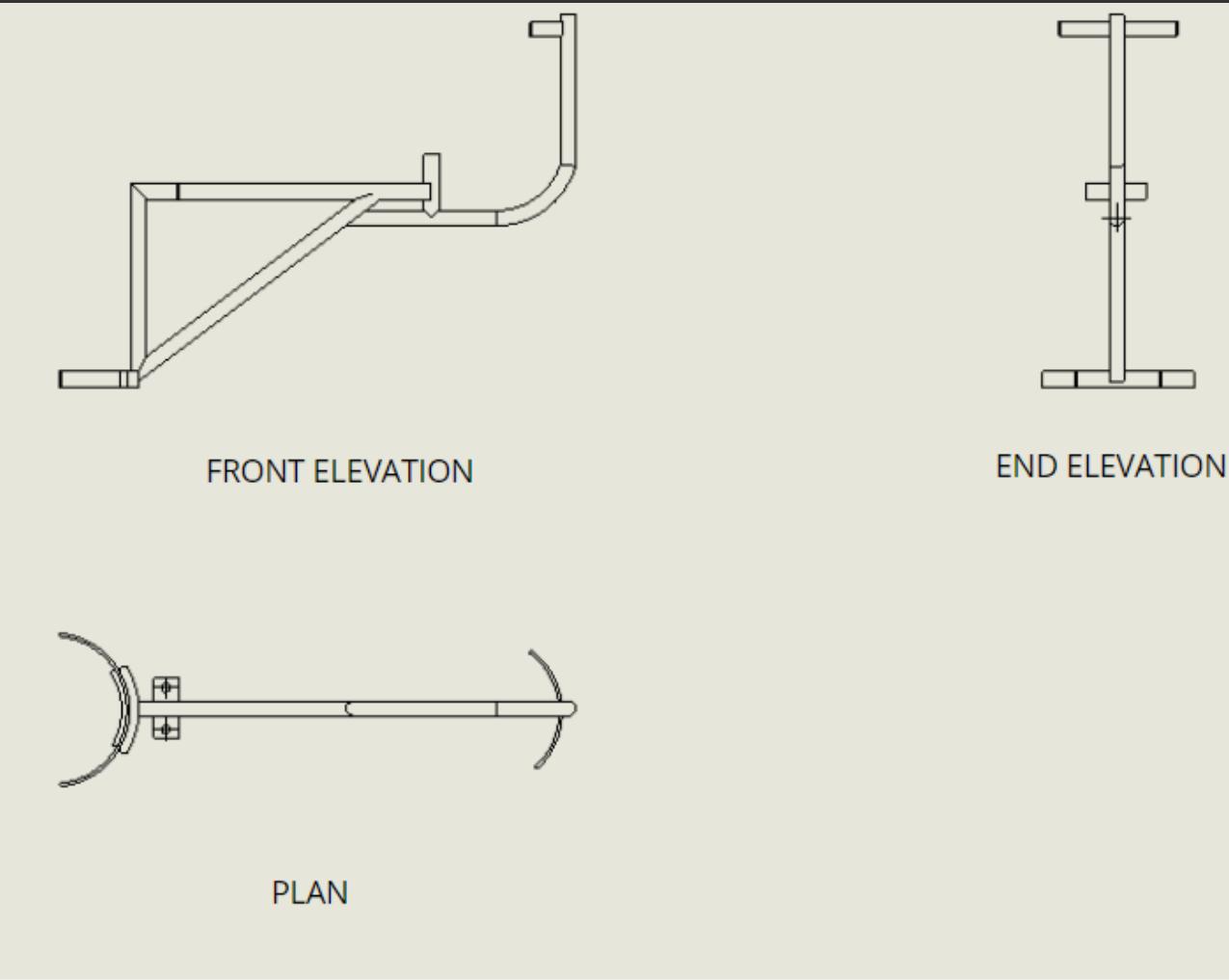


# FOOT PATH

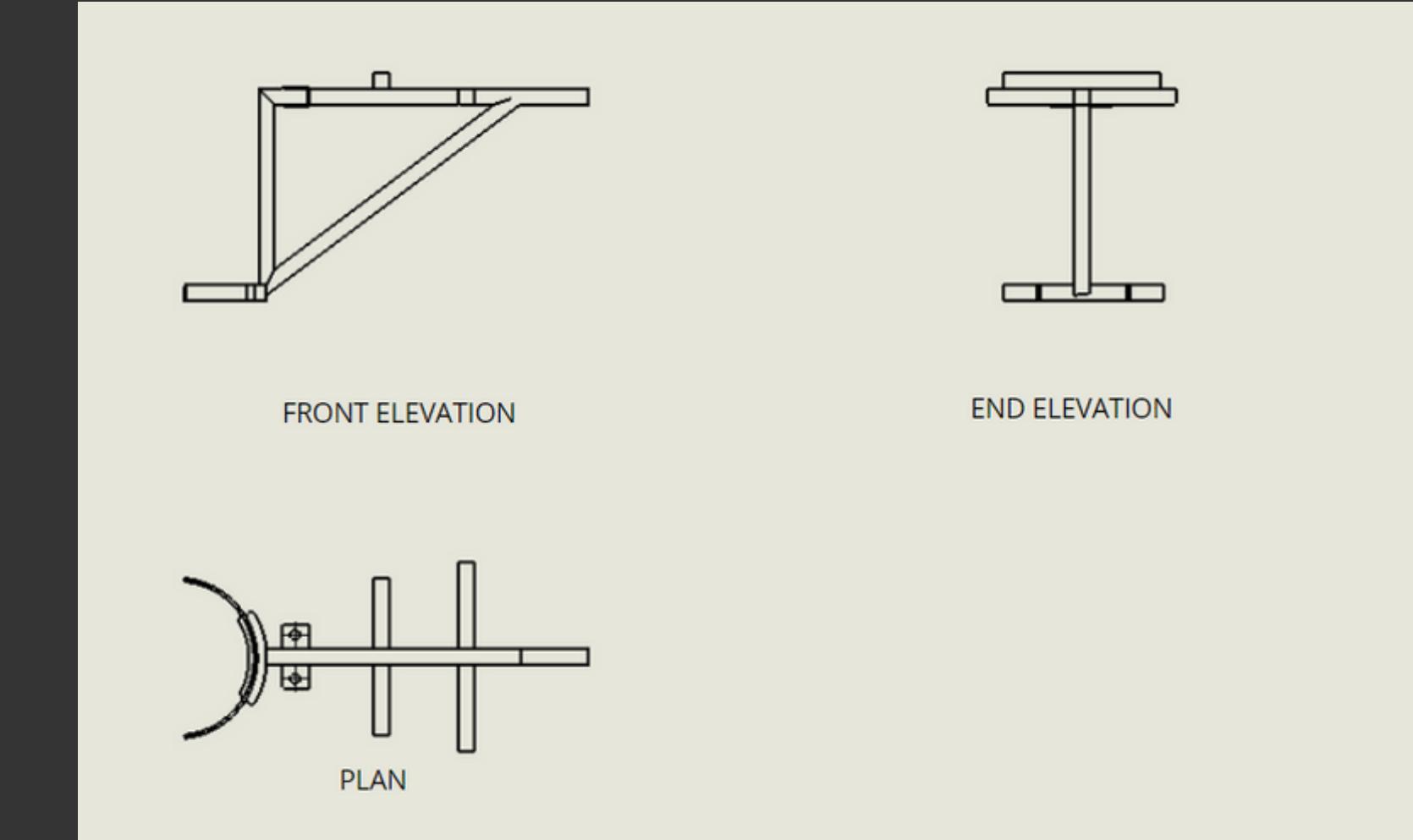


# BELT BUCKLE

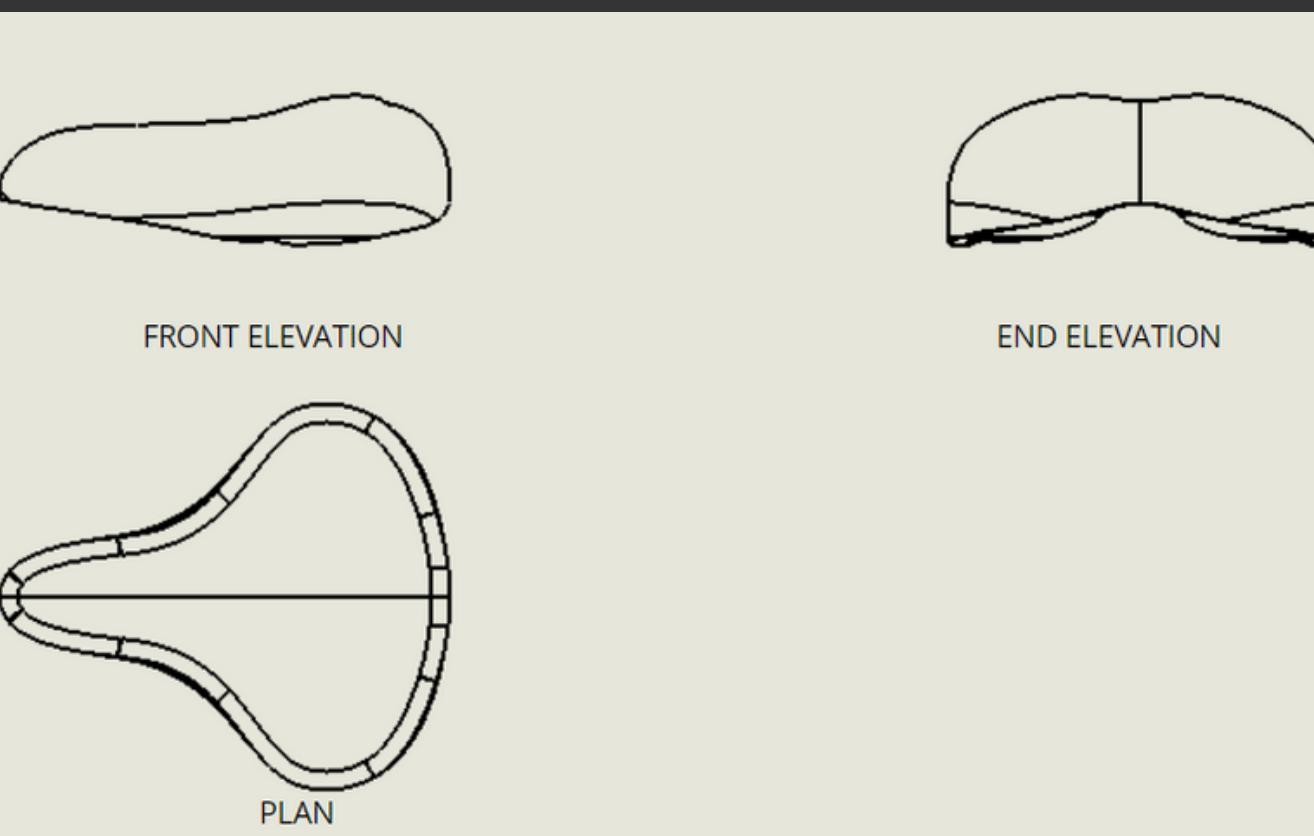
## 7. 2D VIEWS



2D : UPPER PART

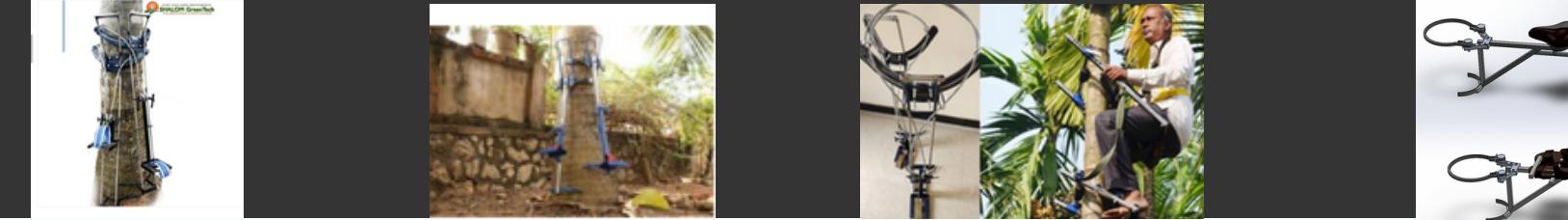


2D : LOWER PART



2D : SEAT

# Factor



	SHALOM MILD STEEL COCONUT CLIMBER	AI ABBAS INTERNATIONAL	ELECTRIC IRON COCONUT CLIMBER	OUR PRODUCT
<b>CUSTOMER SERVICE</b>	24/7	24/7	24/7	24/7
<b>PRICE (PER ONE)</b>	10000/=	16000=	19500/=	Not determined yet but will offer at a very low price
<b>BRAND</b>	shalom	abbas	Siddhi plastic	CoCo_Climb
<b>CAPACITY</b>	max 120kg	165kg	180kg	200kg
<b>MATERIAL</b>	mild steel	steal	Iron	Mild Steel
<b>AUTOMATION GRADE</b>	manual	Unlimited call and text to two family members	Semi Automatic	Semi Automatic
<b>SAFETY(HUMAN INTERVENTION)</b>	✗	✓	✓	✓
<b>ONLINE SALE</b>	✗	✗	✗	✓
<b>EASY USE</b>	✗	✓	✓	✓
<b>PRODUCT LIFE</b>	✓	✓	✓	✓
<b>SAFETY TOOLS</b>	✗	✗	✗	✓



THE  
**MARKETING**  
TO POST ON  
**SOCIAL MEDIA**

**FACEBOOK**



16:51 •

← CoCo\_Climber

CoCo\_Climber ▾

Overview Ads Notifications ...

EDIT



CoCo\_Climber Create Page @username

+ Create Action Button

Post Photo Promote View as Edit Page

[Home](#) [Services](#) [Reviews](#) [Shop](#) [Photos](#)

Set your Page up for success  
Finish setting up your Page so people on Facebook know that you're a credible business.

4 of 13 steps completed

**INSTAGRAM**



16:52 •

coco\_climber ▾ •

[View professional dashboard](#)



1 Posts 43 Followers 219 Following

Coco\_Climber Try to create innovative climber   
We are 2nd year Mechanical Engineering students. Your support is very helpful for our research

[Edit Profile](#) [Ad Tools](#) [Insights](#)



# 8. Conclusions



## FUTURE SCOPE

1. To automate at low cost.
2. Automatic climbing and plucking system using electronic sensors.
3. Fully compact system generation by using light and good strength materials
4. launch the website for solve the customer needs immediately

## References

1. Agnihotram RV. An overview of the occupational health research in India. 2009; (1): 10-14
2. Agampodi SB, Dharmaratne SD, Agampodi TC. The incidence and the predictors of onboard injuries among Sri Lankan flight attendants. BMC Public Health. 2009; 9: 227
3. Bertrand M. Training without a reward: the traditional training of petaled macaques as coconut harvesters. Science 1967;155: 3761: 484-86
4. Khaled R. Asfar, "Palm tree climbing robot", Journal of Automation and Control Engineering Vol.4, No. 3, June 2016.

THANKYOU