2021

INDUSTRIAL DESIGN

GRADUATION PROJECT

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A straw with our iced coffee, a plastic bag to carry our takeout, a wrapper on a candy bar taken individually, each seems harmless. These modern conveniences are so quickly thrown out—that they hardly register in our minds. But single-use plastics come with a steep environmental price—one that we'll be paying off. Our plastic addiction is having a devastating impact on our oceans, our wildlife, and our health.

What Are Single-Use Plastics?

Put simply, single-use plastics are goods that are made primarily from fossil fuel–based chemicals (petrochemicals) and are meant to be disposed of right after use

Single-use plastics are most commonly used for packaging and serviceware, such as bottles, wrappers, straws, and bags.

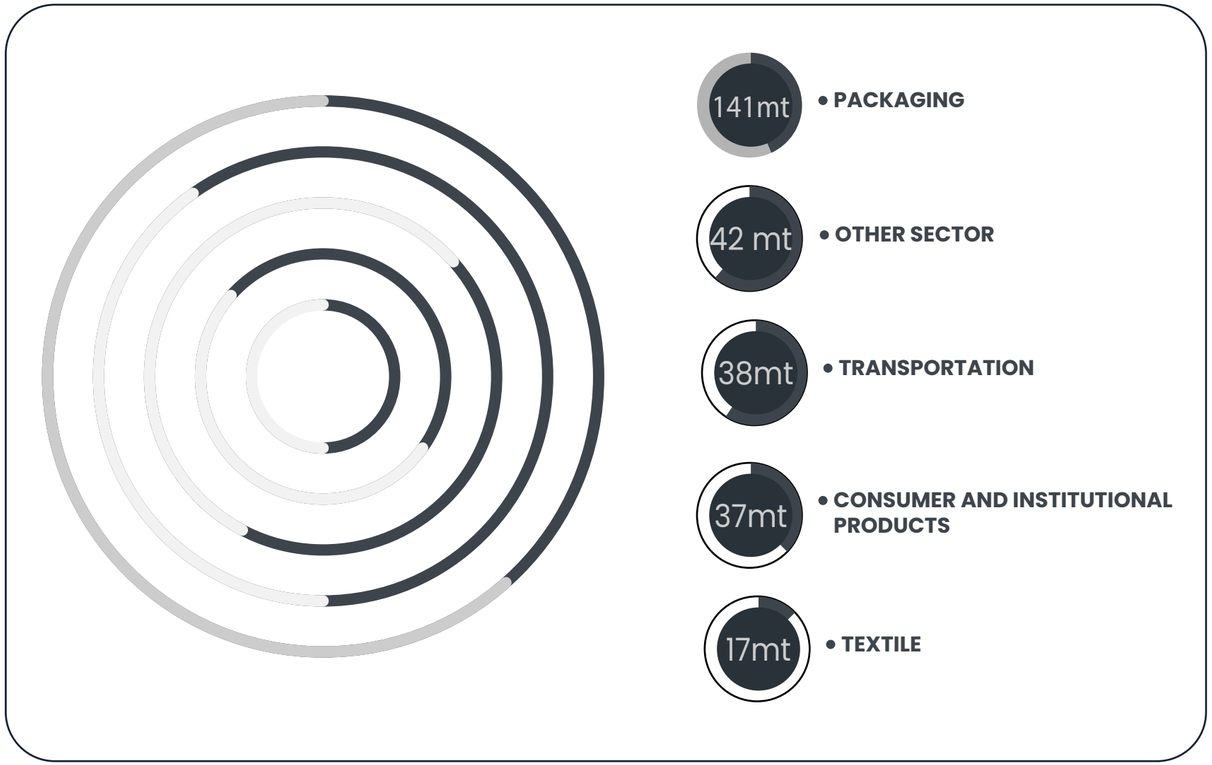
Though plastic—a chain of synthetic polymers, essentially—was invented in the mid-19th century, it wasn't until the 1970s that its popularity skyrocketed. Manufacturers began replacing traditionally paper or glass staples with lighter or more durable and affordable plastic alternatives; plastic jugs replaced milk jars, for instance. Since the 1950s, 8.3 billion metric tons of plastics have been produced, and half of that in the past 15 years alone.

THE PLASTIC CONTEXT

PLASTIC WASTE GENERATION BY INDUSTRIAL SECTOR, 2019

Global plastic waste generation by industrial sector, measured tonnes per year

Unit mt- Million tonnes



https://images.app.goo.gl/yagHis7qgPnSzHS86

THE PACKAGING CONTEXT

Much of the waste found in landfills is packaging waste. Much of this packaging, including polystyrene and other plastics, does not break down quickly. In fact, some of the packaging making its way to landfills does not break down at all, creating long-term environmental problems.

PRODUCT PACKAGING

Product packaging is defined as materials used to present goods, contain them appropriately and provide for safe shipping and handling. Packaging is the product used to wrap or protect goods, including food, beverages, medications and cosmetic products. The large quantity of packaging creates various environmental impacts, including the effect of manufacturing the packaging and the impact of disposing of it in landfills. The U.S. Environmental Protection Agency has released suggestions on how retailers can reduce the impact of their packaging on the environment. Many companies are voluntarily looking to reduce the environmental impact of their products' packaging.

WHY IS PACKAGING WASTE A CONCERN?

Packaging waste pollutes our air, water and soil. In fact, 1.9 million tonnes of packaging waste produces the same amount of greenhouse gas as 860,000 cars. The litter it creates also ends up in many places that it shouldn't – blocking our stormwater drains and causing serious problems for our wildlife.

https://bizfluent.com/info-8215836-environmental-impacts-product-packaging.html

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MAJOR BRANDS WHICH CONTRIBUTE TO THE GENERATION OF NON-RECYLABLE WASTE

Amazon Retail India Private Limited and Flipkart Private limited are involved in packaging and selling of other companies' products and thus introducing plastic packaging in the market.

A recent study by Oceana found that Amazon generated 465 million pounds of plastic packaging waste in 2019. The environmental group further estimated that up to 22.44 million pounds of Amazon's plastic packaging ended up in the world's freshwater and marine ecosystems as pollution in the same year, or "roughly equivalent to a delivery van's worth of plastic being dumped into major rivers, lakes, and the oceans every 70 minutes."

https://retail.economictimes.indiatimes.com/news/e-commerce/e-tailing/amazon-flipkart-need-to-establish-system-for-collecting-plastic-waste-cpcb-to-ngt/73698821

https://www.vox.com/the-goods/22214017/online-shopping-pandemic-packaging-ecommerce-waste-plastic

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EXISTING MATERIAL STUDY FOR BRAND - AMAZON

According to research from ocean conservation charity Oceana, plastic air pillows and bubble wrap accounted for most of the waste from Amazon deliveries, the use of which has risen rapidly in recent years. The report, which surmised that Amazon sent some 7 billion deliveries last year alone, calculated that the combined length of the air pillows used by Amazon in one year would circle the Earth 500 times.

Oceana also conducted a survey of 5,000 Amazon customers, finding that 86% of respondents were "concerned" about plastic pollution. As these packages come waste: cardboard boxes, air pillows, flexible bubble mailers, tape, labels, Styrofoam and more.

Even before 2020's e-commerce shopping binge, the huge amount of plastic waste generated by Amazon deliveries posed serious problems for global waterways, according to a report from environmental nonprofit Oceana. The company has boosted the amount of plastic packaging it uses each of the last three years, the report said.

https://phys.org/news/2020-12-amazon-plastic-encircle-globe.html

forbes.com/sites/davidrvetter/2020/12/15/this-is-how-much-plastic-from-amazon-deliveries-ends-up-in-the-ocean/?sh=726cd4ca63b4

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Online shopping has boomed all around the world
But what about all the packaging?

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Aim - To re - design the packaging for Amazon to reduce waste , post consumption.

Objectives -

To study and understand the existing material cycle.
To study and understand the manufacturing cycle from scratch to scrap.
To study and understand the substitute materials used for home delivery packaging.

Description -
In today's world, we as product designers should think about materials of design. It's not only about designing a product or designing a packaging for any product, it's also about thinking on the application of materials to make it sustainable to use and consumption of package so that there would be less harm to the environment.

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PROBLEMS IDENTIFICATION

EXCESS PACKAGING MATERIALS

- *Usage of plastics bags*
- *Usage of bubble wrap*
- *Usage of stretch wrap*
- *Usage of cellotape*
- *Usage of excess packaging materials*

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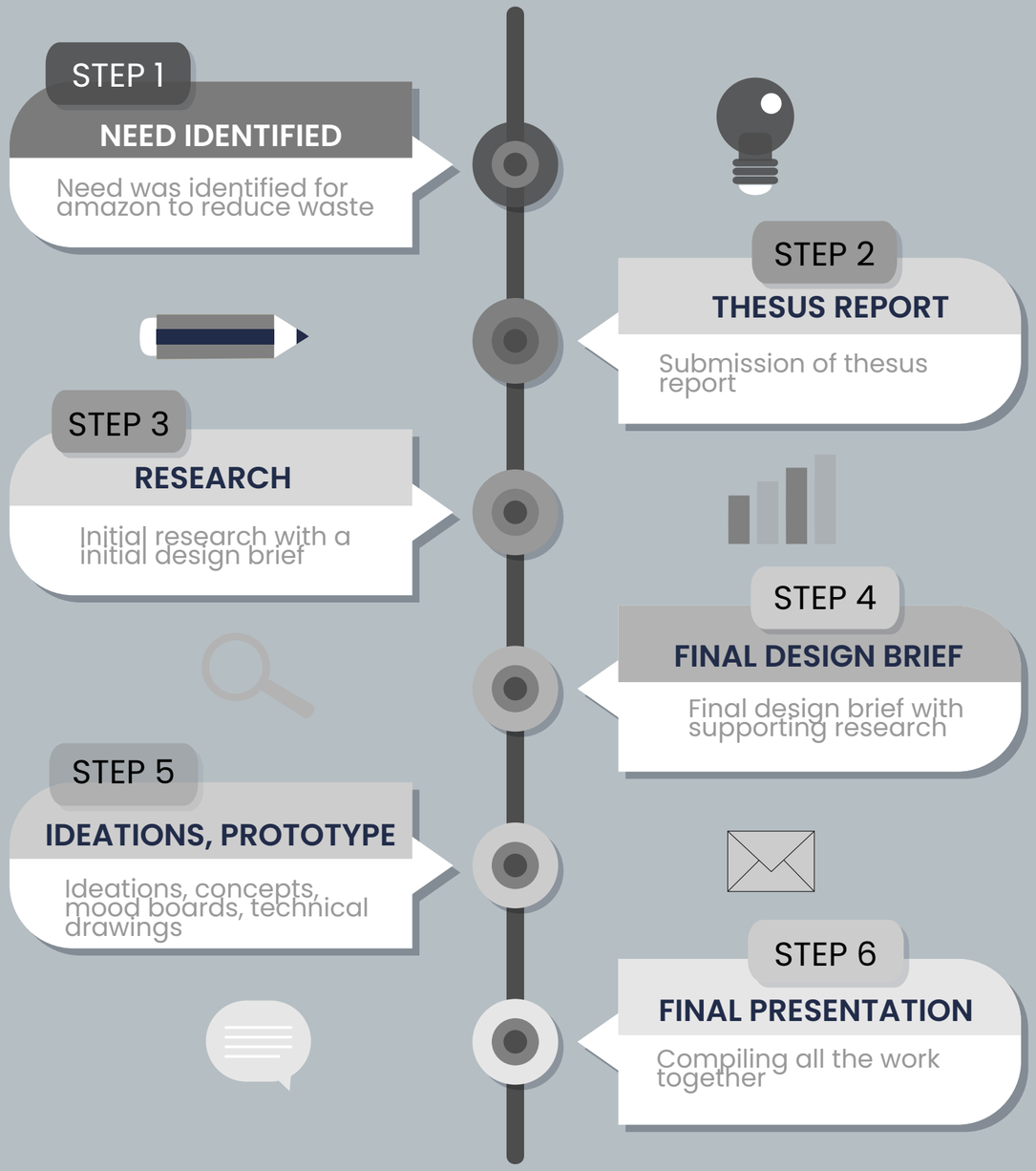
Methodology- I will first study what is the existing material used for their packaging. What are the various types of plastics used and are they bio-degradeable. Many a times for small things there is a huge box or say a big packet which has a very small product into it. I will study and document at least 50 environment consious users using amazon products . I will document their use and packaging. I will also connect with few experts which are associated with amazon and make a questionnaire for them, take their interviews as to what is their thought about the packaging, how have they designed their packaging etc.



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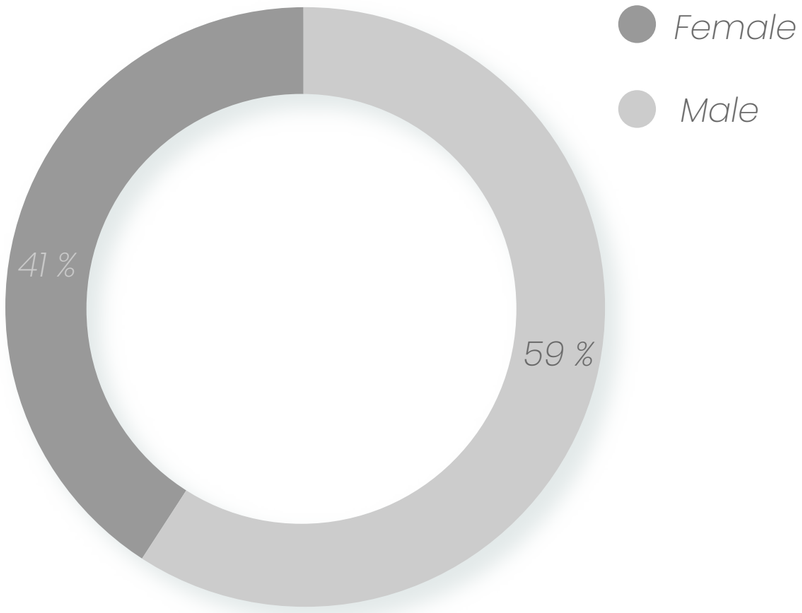
QUANTITATIVE RESEARCH

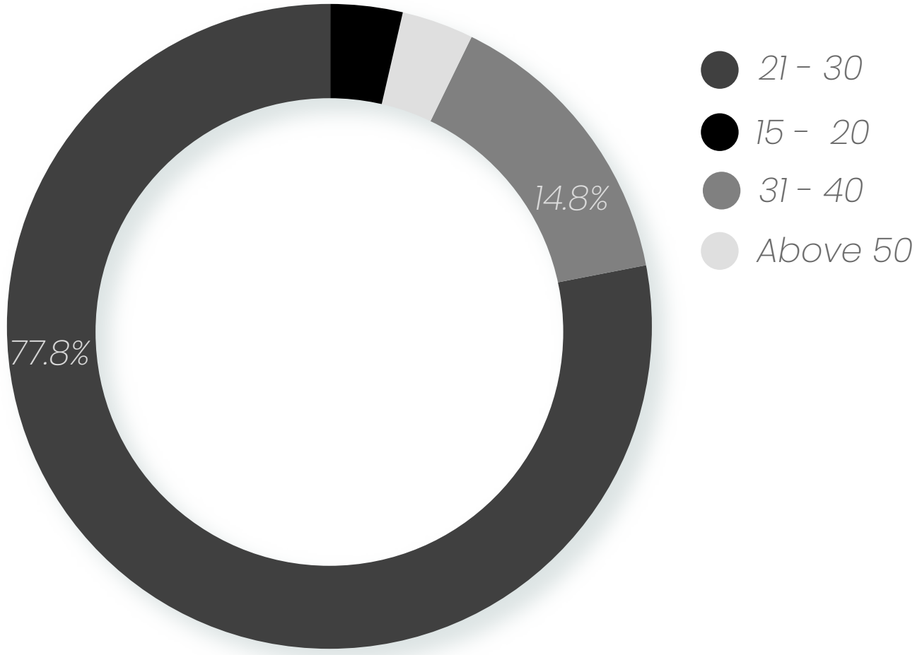
Quantitative research is defined as a systematic investigation of phenomena by gathering quantifiable data and performing statistical, mathematical, or computational techniques. Quantitative research collects information from existing and potential users using sampling methods and sending out online surveys, online polls, questionnaires, etc., the results of which can be depicted in the form of numerical. Even I conducted a quantitative research I prepared a questionnaire for the users and sent them digitally and got a response from 48 users.

Questionnaire -

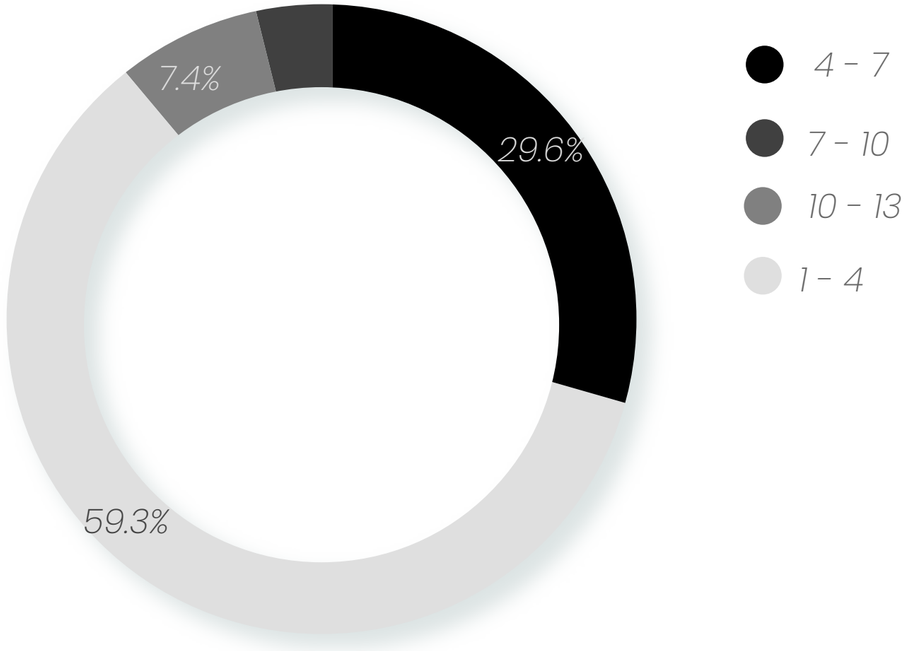
- *What is your name ?*
- *What is your gender ?*



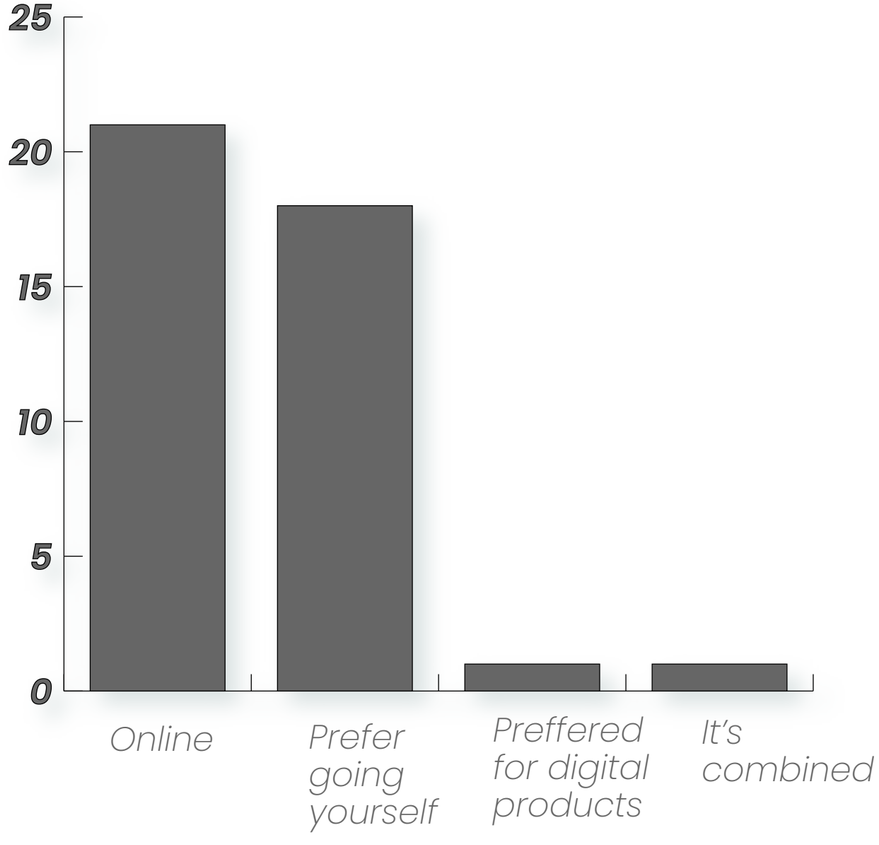
- *Your age ?*



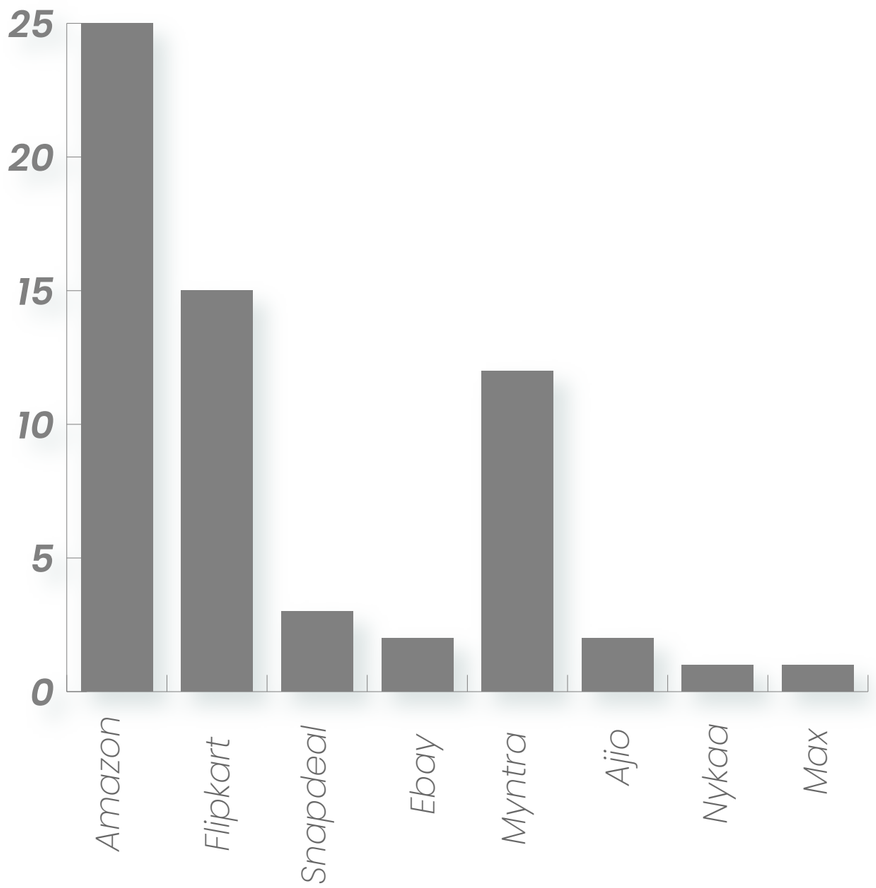
• *Number of family members ?*



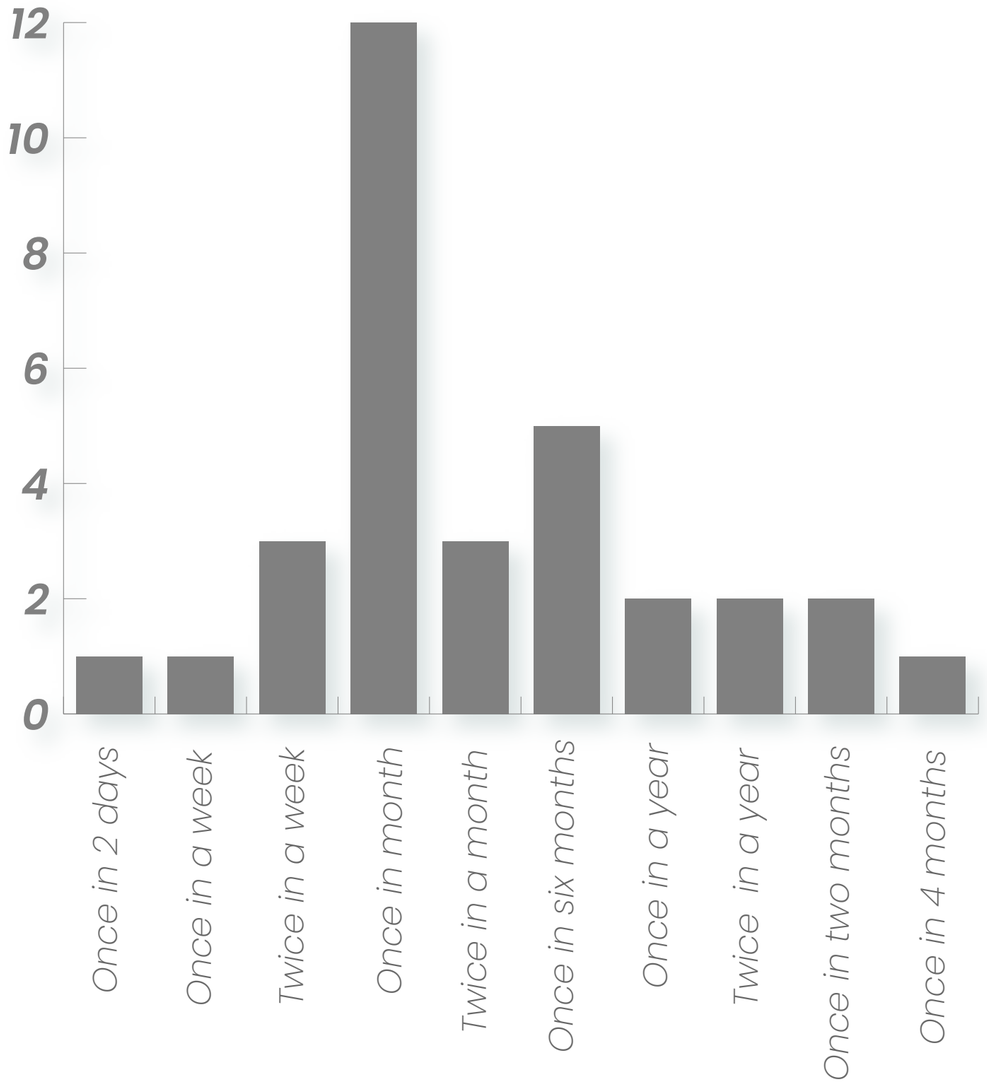
• *How do you prefer buying products ?*



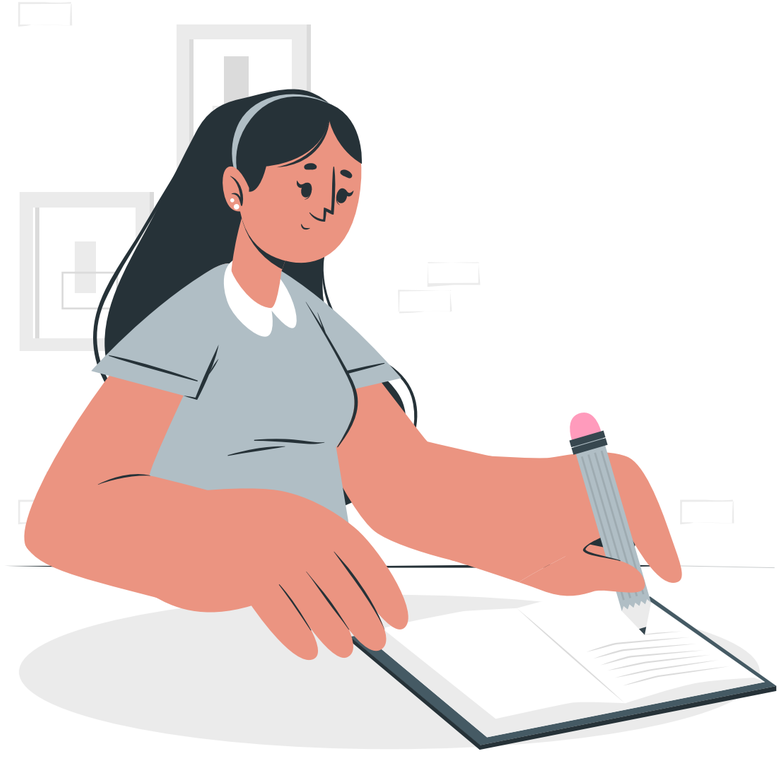
- *From which of these websites do you usually shop ?*



- *How often do you shop from Amazon ?*

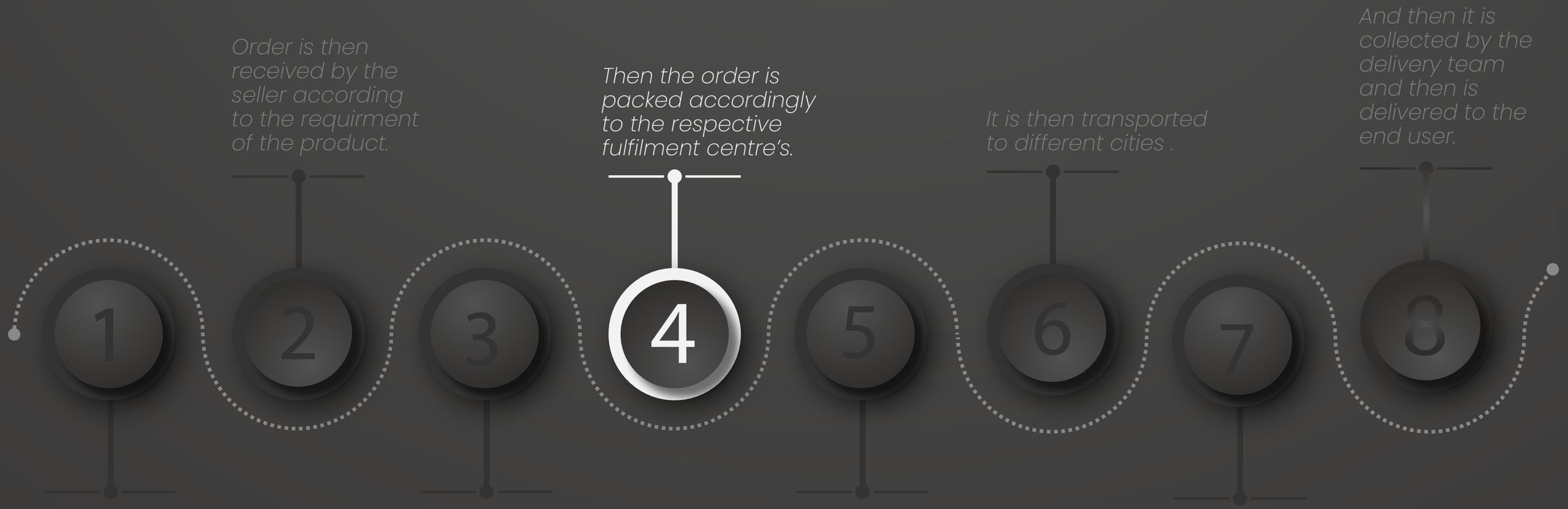


QUALITATIVE RESEARCH



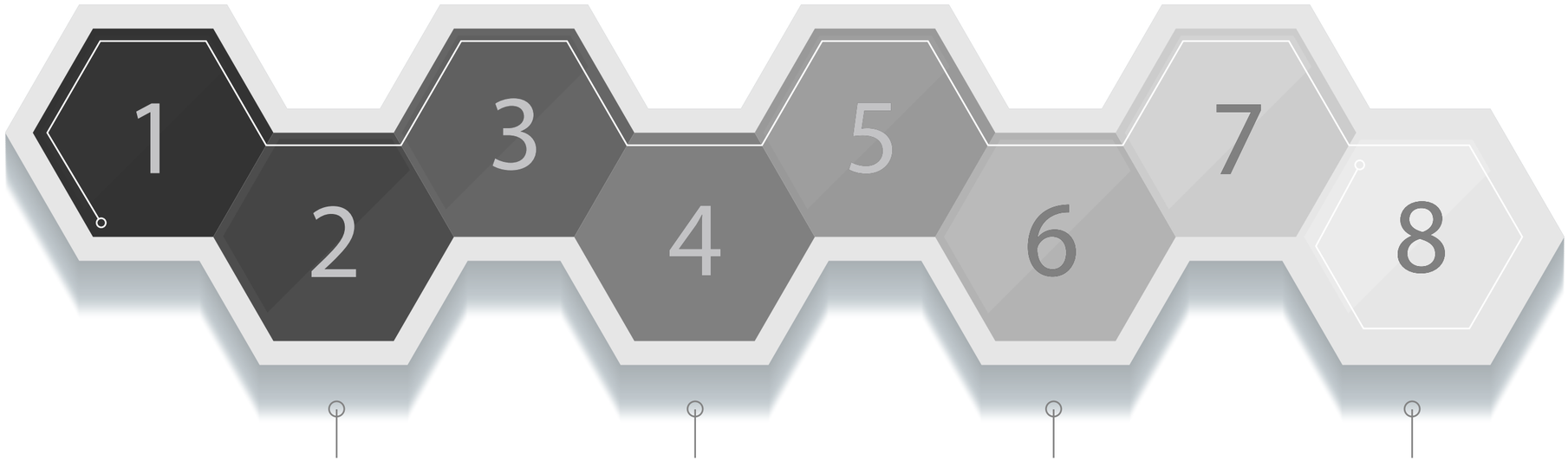
Qualitative research is defined as a market research method that focuses on obtaining data through open-ended and conversational communication.
This method is not only about "what" people think but also "why" they think so.
And also their logics behind thinking so or behaving in a specific manner.
So, then even i followed this method by going to the warehouse itself which is named as BOM 4 (these are named after the airport code of Mumbai i.e BOM there are 9 fulfilment centres owned by amazon in West region including Gujrat and Maharashtra) ,I did my research which is in Bhiwandi, near Kalyan, Maharashtra.
There first I studied the whole end to end process i.e once the user orders to how is the order delivered to the end user. Before going there I had prepared a questionnaire for the experts , the HR and also the workers there. So, I could know the whole process and then decide how and where to intervene.
So, then my first aim was to study the whole system and then as I wanted to re-design their packaging I also visited their Fulfilment centre where the packaging is done.
Which is located in the same city Bhiwandi there I studied the whole process of packaging of 45 products from different domains in detail and documented them as well so I could study the various logics behind those and also could identify a domain in which I could intervene as a designer .

A VISIT TO AMAZON WAREHOUSE



A VISIT TO THE FULFILMENT CENTRE

1. *Order is then received by the seller and then stacked on the ailes by the stower.*
2. *Picker then collects the required products from those ailes and brings it to the packing station in a cart.*
3. *The packaging staff then scans the barcode & picks the reccomended box by the system from the rack.*
4. *Places the product into the box and covers it with paper dunage to protect the product during the transport .*
5. *Folds the box & adds shipping labels and seal it with paper tapes .*
6. *Transfers the packed parcels on the conveyer belt so it reaches to the sorting and transport station .*
7. *They have this CPT timing,(Customer promise time) this timing is given to every packing station where they're suppose to pack their orders in the given time but then as they're in a hurry they do not handle the parcels with care.*
8. *Goes further for sorting and transporting stations .*



At the FC I had documented and studied 40 different products from various domains, so I could understand where is the need to intervene as a designer. So, I have few Scenario's identified through my research where I feel there is a need to intervene , they're from various domains I will share those scenario's in the further presentation with their photographs as well.

There the basic materials used for packaging which I found were corogated boxes, Polybags, paper dunage for protecting the products were used instead of bubble wraps and air pillows, and paper tapes were also used for sealing the boxes they have stopped using plastic tapes, bubble wraps and air pillows from last 6-8 months and are now moving towards the idea of 'GREEN PACKAGING'. After talking to the senior lead there he says that using paper dunage is not that economical, he says previously when we used air pillows and bubble wraps it use to cost maximum 1 rupee for a single product but since we have started using paper dunage the cost has gone to almost 4 rupee for a product but know are vision is moving towards sustainability so we want to think in that direction and make our world a better place.

THESE ARE THE PACKAGING SAMPLES I HAVE COLLECTED FOR STUDYING THE DIMENSIONS & THE MATERIAL

01 SCENARIO

ENVIRONMENTAL HAZARDS OF LDPE POLYBAGS USED AT AMAZON FOR PACKAGING

Although Low-Density Polyethylene Bags meet most of the requirements of the consumer, they also have negative effects. LDPE bags are not very environmentally friendly as it is a non-renewable one. Another drawback is that because of their weightless nature, they cannot be disposed of so easily. The excessive use of Low-Density Polyethylene Bags is harmful to the environment as it is not biodegradable.

The recycle life is 7-9 times, if recycled or else, it ends up onto the landfills.

https://www.ldpebag.com/blogs/understanding-the-recycling-process-of-ldpe-bags

https://www.makethemostofwaste.co.nz/recycling/how-many-times-can-it-be-recycled/#:~:text=The%20polymers%20that%20make%20up,be%20recycled%207%2D9%20times

https://www.plasticexpert.co.uk/how-many-times-can-plastic-be-recycled/

http://www.sustainabilityguide.co.uk/2018/02/05/recyclable-plastic/

1

Cubi Scan machine

2

3

4

5

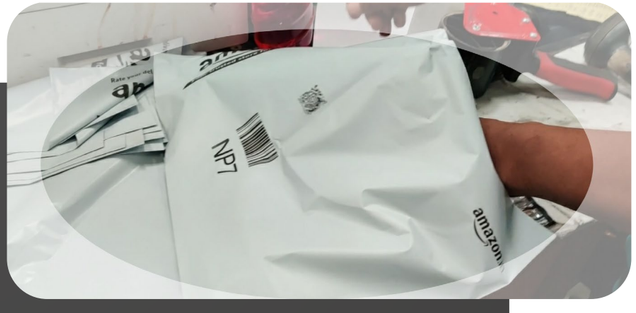
6

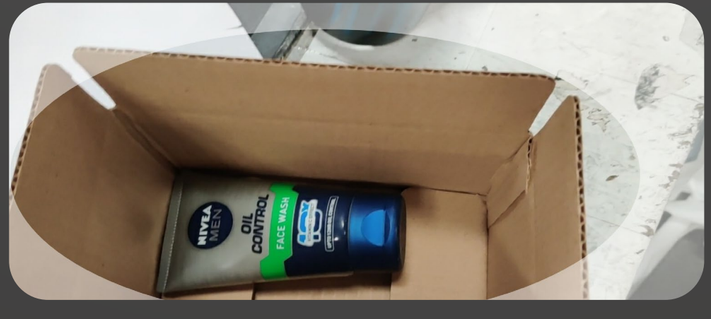
02 SCENARIO

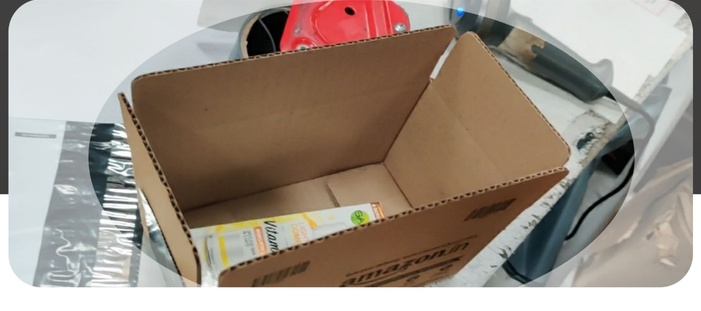
While packing few products in different scenarios I found that they've used excess packaging material while packing this happens because there is this apparatus named as cubi scan machine which calculates three parameters of the product which are the height, width and the weight and then auto recommends the type of packaging to be used. And accordingly the packaging staff has to use the suggested box or poly bag. As the parameters are pre-fed into the system, some products have varied packaging compared to the system generated dimensions.

This happens due to wide range of product sizes as Amazon cannot design packaging for every single product.

FEW MORE EXAMPLES WHERE EXCESS PACKAGING IS DONE







03 SCENARIO

They were re- packing the corrogated box of Cello casrol into a new box of Amazon , they also added lot of paper dunage to it. Which was not needed as the product in the box was already covered with a bubble wrap.

They say, they re- pack them with an intend of branding.

Envolopes used by Amazon for branding

Then they showed me these samples they were using these earlier but now due to the de- merits they have stopped using these envolpopes. They are simple envolopes they add the invoice note into it seal it and attach only the envolope to such boxes.
But the de- merits were that they use to easily slip off as Amazon has started using paper tapes it does not have that amount of stickness same as the plastic ones. Also, the other drawback was that on big boxes they weren't easily seen and recognized as the width of the tape and the width of the envolope was almost similar so then it use to get hide under the paper tape.

INTERVIEW WITH THE SENIOR LEAD, AMAZON

Mr. Nainesh Bardiya

He is 38 years old, stays at Kalyan, works currently as a senior lead in Amazon at Bhiwandi. He has an experience of 7 years in Amazon.

Questionnaire -

- What are the basic materials used for packaging ?
- Is the poly bag we use bio- degradable ?
- For which products do you use poly- bags specifically ?
- For which products do you use boxes specifically ?
- Why did you decide onto those particular materials ?
- What are the various sizes of poly bags and boxes ?
- What are the parameters on which you select a specific size of poly bag or a box ?
- Why do you use paper dunage ?
- From how long have you stopped using bubble wraps & air pillows ?
- Why did you stop using them ?
- Does paper fulfil the need of bubble wrap ?
- If yes, is paper economically feasible ?
- If no, why are you then comprimising on your profits ?
- Why do they use such big boxes and poly bags for a small size of product ?
- Why are some products which are similar , still packed differently (like one in packed in a poly bag and the other is packed in the box) ?
- Why do you re - pack a already packaged product of a good quality ?

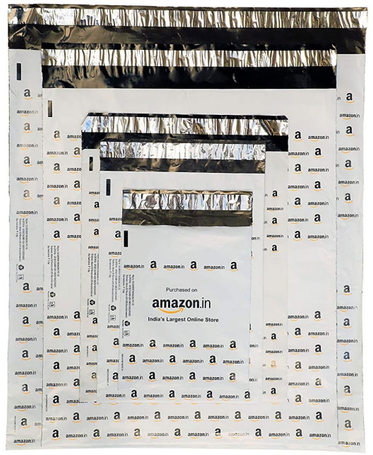
There are 7 different sizes of the bags used at the packing station they differ in their sizes with the same material. The material used is LDPE plastics for the polybags and there are 09 different size of boxes. Also, they have the same basic material but the thickness varies a little. The boxes and poly bags are named as NC9, NC4, NC31A and so on and then the system selects a particular pacakge on the basis of the length, width, and the weight of the product and also suggests it by checking the city or state where it is to be shipped, like if the location is nearby maybe in Mumbai itself they then pack it in poly bags and if it is going somewhere far they would prefer using corrugated box by adding paper dunage as well to protect the product.

MEASURED THE SIZES OF VARIOUS PACKAGING BOUGHT FROM THE WAREHOUSE FOR FURTHER USE DURING THE PROCESS OF IDEATION -

SIZE CHART - *(for boxes)*

Prod. no	Length	Breadth	Height
NC9	12 inches	6.5 inches	6 inches
NC4	7 inches	4.2 inches	4 inches
NC31A	9.5 inches	8.5 inches	8 inches
NC24	21 inches	14 inches	5 inches
BS16	14.5 inches	12 inches	10 inches
NC27	22 inches	15 inches	10 inches
NC37A	13 inches	11 inches	10 inches
NC48	25.5 inches	17 inches	15 inches
NT4	10.5 inches	5.5 inches	2 inches

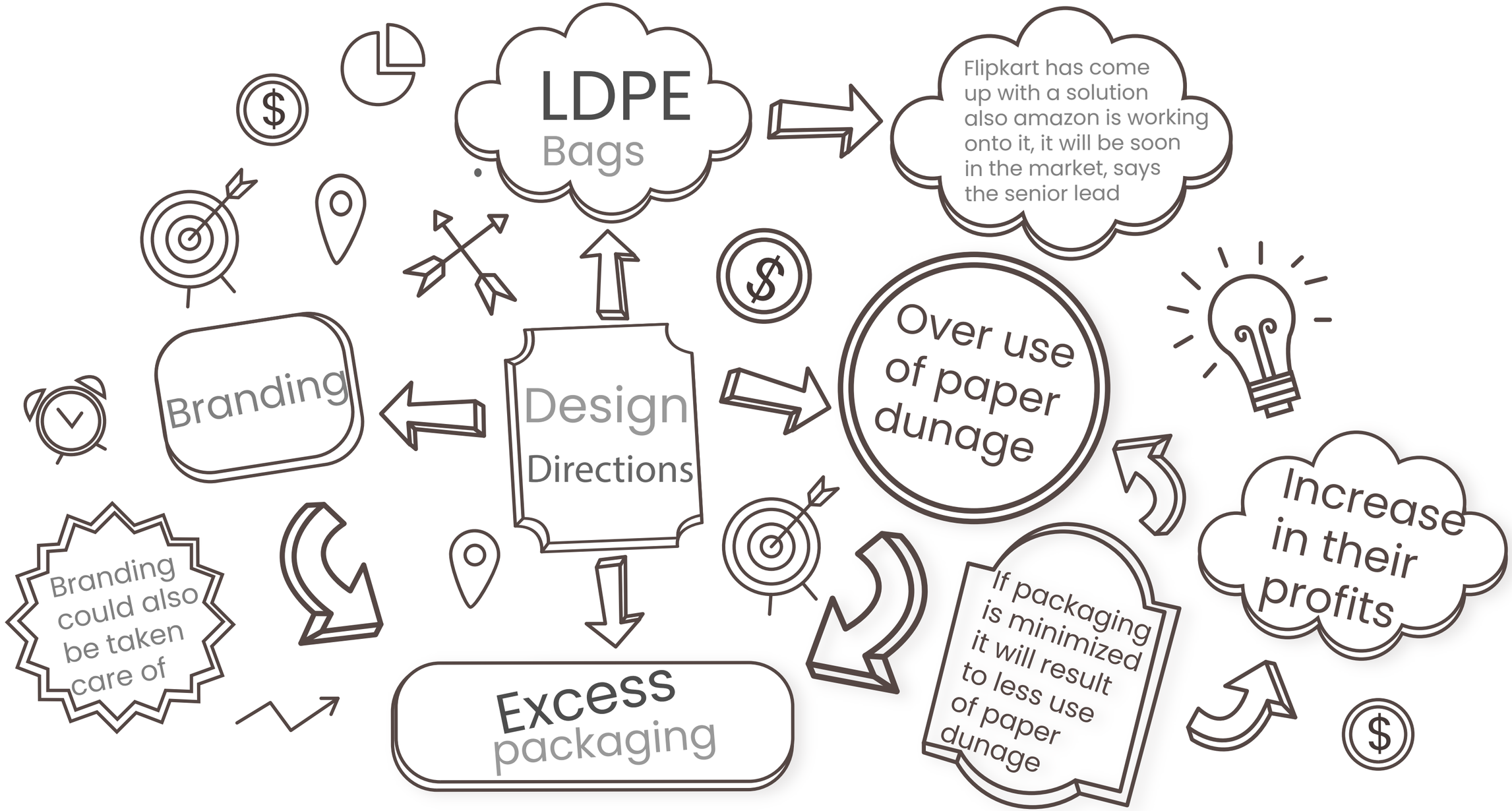
S I Z E C H A R T - *(for polybags)*



Prod. no	Length	Breadth
NP7	17 inches	13 inches
NVT34	25 inches	21 inches
NMT1	11 inches	10 inches
NP5	10 inches	07 inches
NP8	15 inches	21 inches
NTT1	18 inches	14 inches
NP9	25 inches	21 inches

MIND MAPPING

Mind mapping is used to represent how ideas or other items are linked to a central idea and to each other. Mind maps are used to generate, visualize, structure and classify ideas to look for patterns and insights that provide key design criteria. A central concept is linked via lines to other concepts which in turn are linked with other associated ideas.
Create a Central Idea. The central idea is the starting point of Mind Map and represents the topic we are going to explore,
Add branches to the map,
Add keywords,
Color code your branches.,
Include visual signifiers (e.g. images) , on the same lines even I have did my mind mapping mapped around various design directions got from my research. Intention was to map the linked concepts and find the root cause.


LDPE
Bags
Flipkart has come up with a solution also amazon is working onto it, it will be soon in the market, says the senior lead
Branding
Design
Directions
Over use of paper dunage
Increase in their profits
Branding could also be taken care of
Excess packaging
If packaging is minimized it will result to less use of paper dunage

INSIGHTS

So, after mind mapping I found that if I work on the excess packaging area, like if I minimize the extra packaging the over use of paper dunage will be reduced and it would also increase in the profits of Amazon. And also the waste generated will be minimized ,branding could be taken care of. But as discussed earlier there are many domains in which amazon serves their products, also there are various sizes of products in which they work. So, stating that my design would be universal would be over ambitious, so then I felt that I should freeze a particular size range in which my solution will fit. I again visited the fulfillment centre in Bhiwandi, Mumbai. And there I measured and looked for all single size available, I also did that earlier but I did not consider the weight I only considered the length and width and the height of every box, but I found that weight also plays a major role so basically, they calculate the length width height and also the weight of the product and then decide on a particular box or a polybag. Also, there I met the team of packaging department and I also prepared a chart with all the dimensions. And then decided onto a particular size to work upon.

2.1Corrugate

Display Name/ Barcode	Commonly known as	INTERNAL DIMENSIONS (LXBXH) IN CM Tolerance : +/- 0.3 cm			EXTERNAL DIMENSIONS (L X B X H) IN CM Tolerance : +/ - 0.3 cm			Tare Weight (Kg s) Tolerance : +/- 5 %
NC19	Shoe Box	35.5	22.8	15.2	36.1	23.4	15.8	0.24
NC21	NC21	132	12.65	12.6	132.6	13.25	13.25	0.38
NC30	NC30	27.9	11.4	11.4	28.5	12	12	0.11
NC8	NC8	29.2	14	12.7	29.8	14.6	13.3	0.11
NC9	NC9	31.8	16.5	15.2	32.4	17.1	15.8	0.15
Display Name/ Barcode	**Commonly known as**	**INTERNAL DIMENSIONS (LXBXH) IN CM Tolerance : +/- 0.3 cm**			**EXTERNAL DIMENSIONS (L X B X H) IN CM Tolerance : +/ - 0.3 cm**			**Tare Weight (Kg s) Tolerance : +/- 5 %**
NC25	NC25	21	14.5	6.5	21.6	15.1	7.1	0.08
NC15	NC15	17.8	10.2	9.4	18.4	10.8	10	0.06
NC4	NC4	17.8	10.2	10.2	18.4	10.8	10.8	0.05
NC5	NC5	24.1	15.2	7.6	24.7	15.8	8.2	0.08

Display Name/ Barcode	Commonly known as	INTERNAL DIMENSIONS (LXBXH) IN CM Tolerance : +/- 0.5 cm			EXTERNAL DIMENSIONS (L X B X H) IN CM Tolerance : +/ - 0.5 cm			Tare Weight (Kg s) Tolerance : +/- 5 %
NC18	TV BOX1	80	28	50	81.36	29.36	51.36	1.58

Display Name/ Barcode	Commonly known as	INTERNAL DIMENSIONS (LXBXH) IN CM Tolerance : +/- 0.5 cm			EXTERNAL DIMENSIONS (L X B X H) IN CM Tolerance : +/ - 0.5 cm			Tare Weight (Kg s) Tolerance : +/- 5 %
MB1	Guitar Box	110	53	17	110.8	53.8	17.8	NA
NC12	NC12	22.7	21.6	19.1	23.3	22.2	19.7	0.24
NC24	NC24	53.2	37	12	53.8	37.6	12.6	0.58

Display Name / Barcode	Commonly known as	Box specific specs						
		INTERNAL DIMENSIONS (LXBXH) Tolerance : +/- 0.3 cm			EXTERNAL DIMENSIONS (LXBXH) Tolerance : +/- 0.3 cm			Tare Weight (Kg s) Tolerance : +/- 5 %
NC31A	NC31A	24.6	21	20	25.2	21.6	20.6	0.2
NC32A	NC32A	27.8	21	22.6	28.4	21.6	23.2	0.24
NC34A	NC34A	37.5	21	20.9	38.1	21.6	21.5	0.28
NC37A	NC37A	33	26.5	26	33.6	27.1	26.6	0.35
NC42A	NC42A	36.8	30.10	29	37.4	30.7	29.6	0.44
NC46A	NC46A	50.6	36.5	36.5	51.2	37.1	37.1	0.69
NC49A	NC49A	64.2	41.7	38	64.8	42.3	38.6	0.91
NC53A	NC53A	74	59	46	74.6	59.6	46.6	1.49

DESIGN BRIEF

Statement -

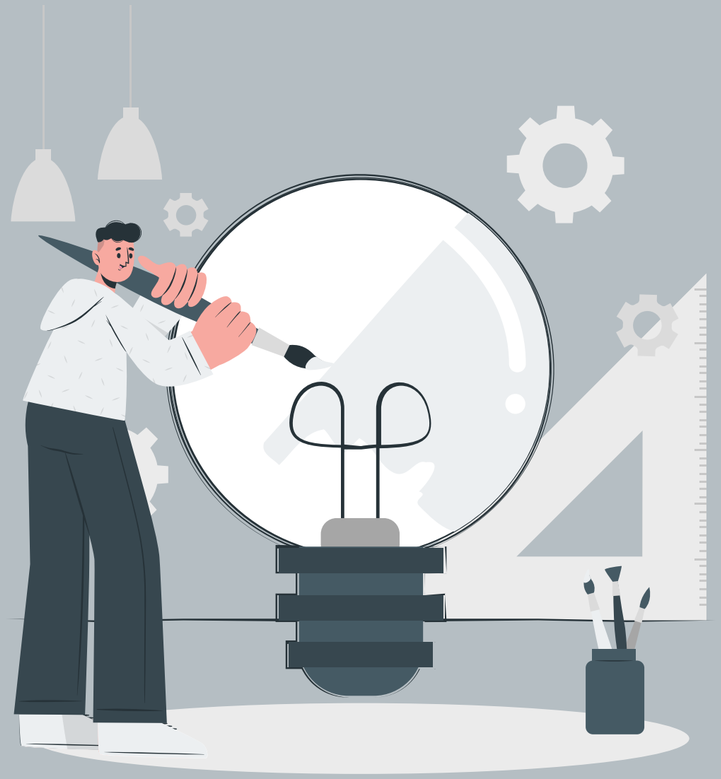
- To design a solution for Amazon which minimizes the excess packaging for 44 x 34 x 23 centimeters size of products.

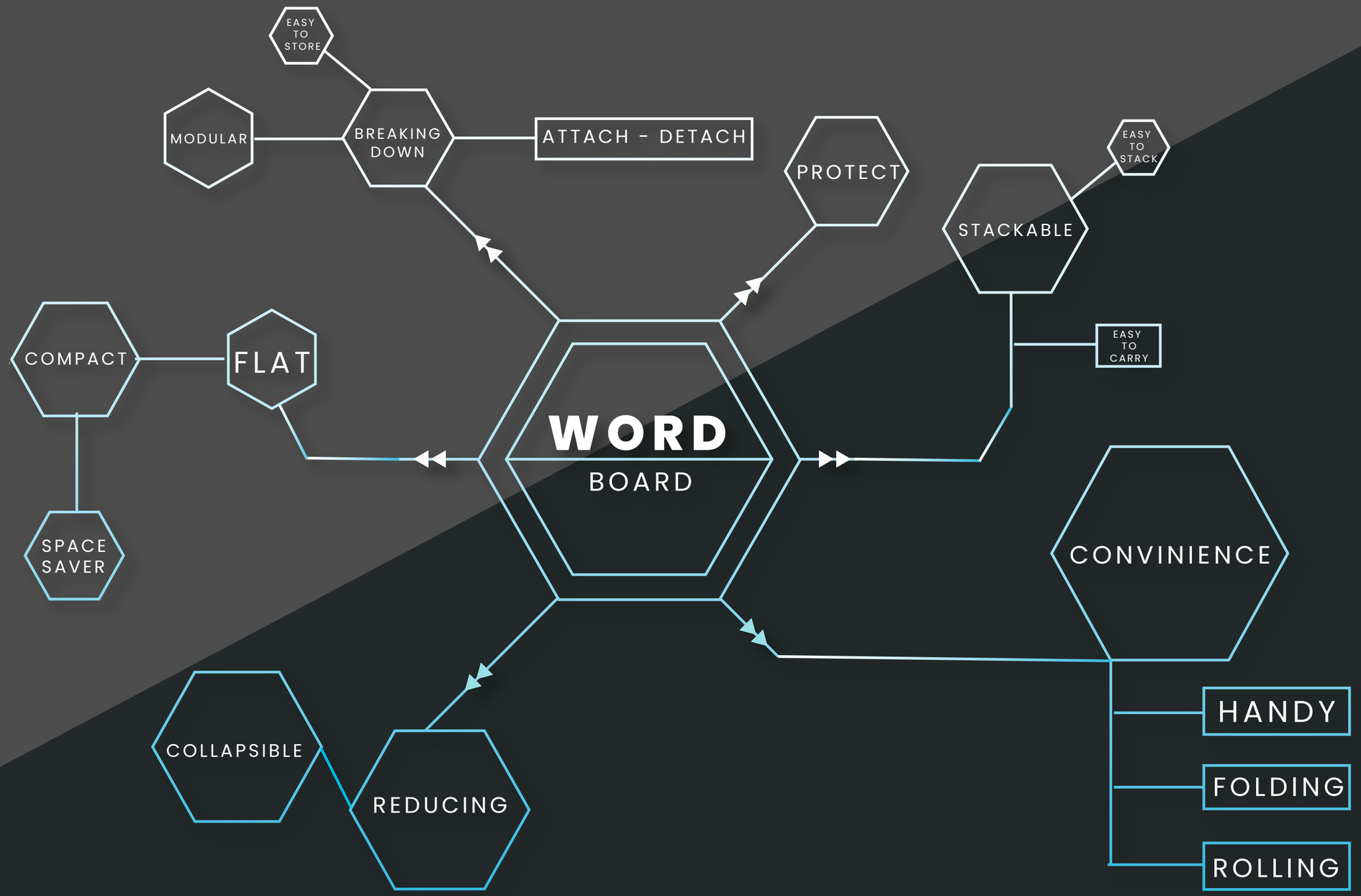
Must haves -

- The solution must be a vision towards to ' GREEN PACKAGING '.
- The solution must deliver the product safely to the end user.
- The solution must also fit in their C.P.T timings (Customer promise time)
- The brand must be show cased properly.

Can haves -

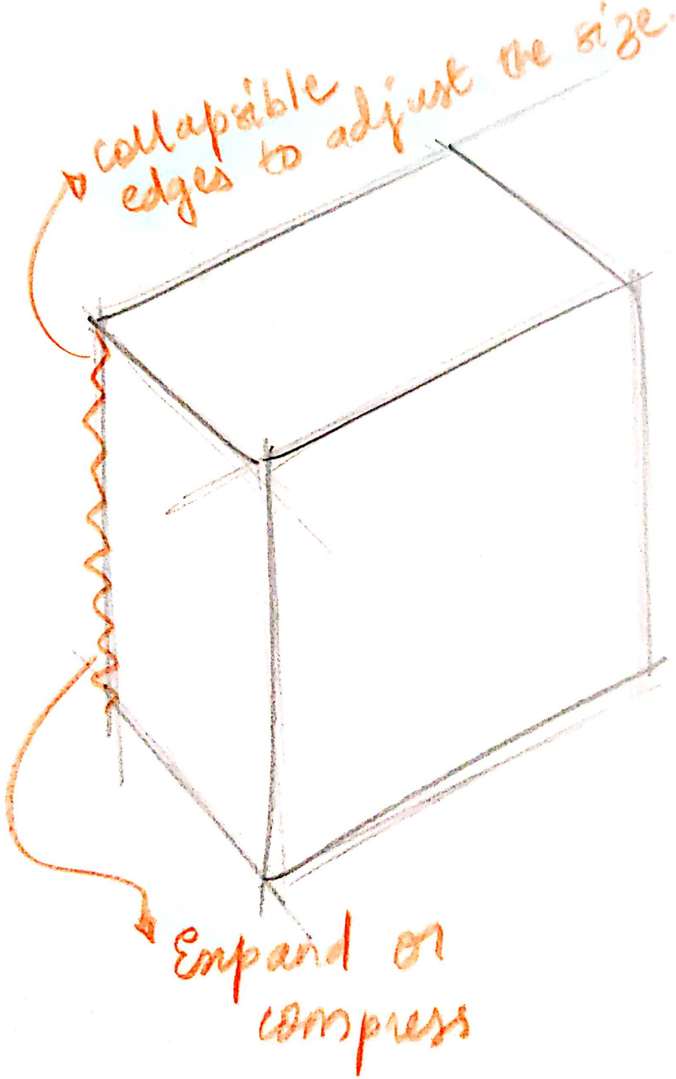
- It can create social awareness maybe through few quotes, graphics, etc.
- It can be reused after the post consumption, as in could give a new life to the overall packaging.,



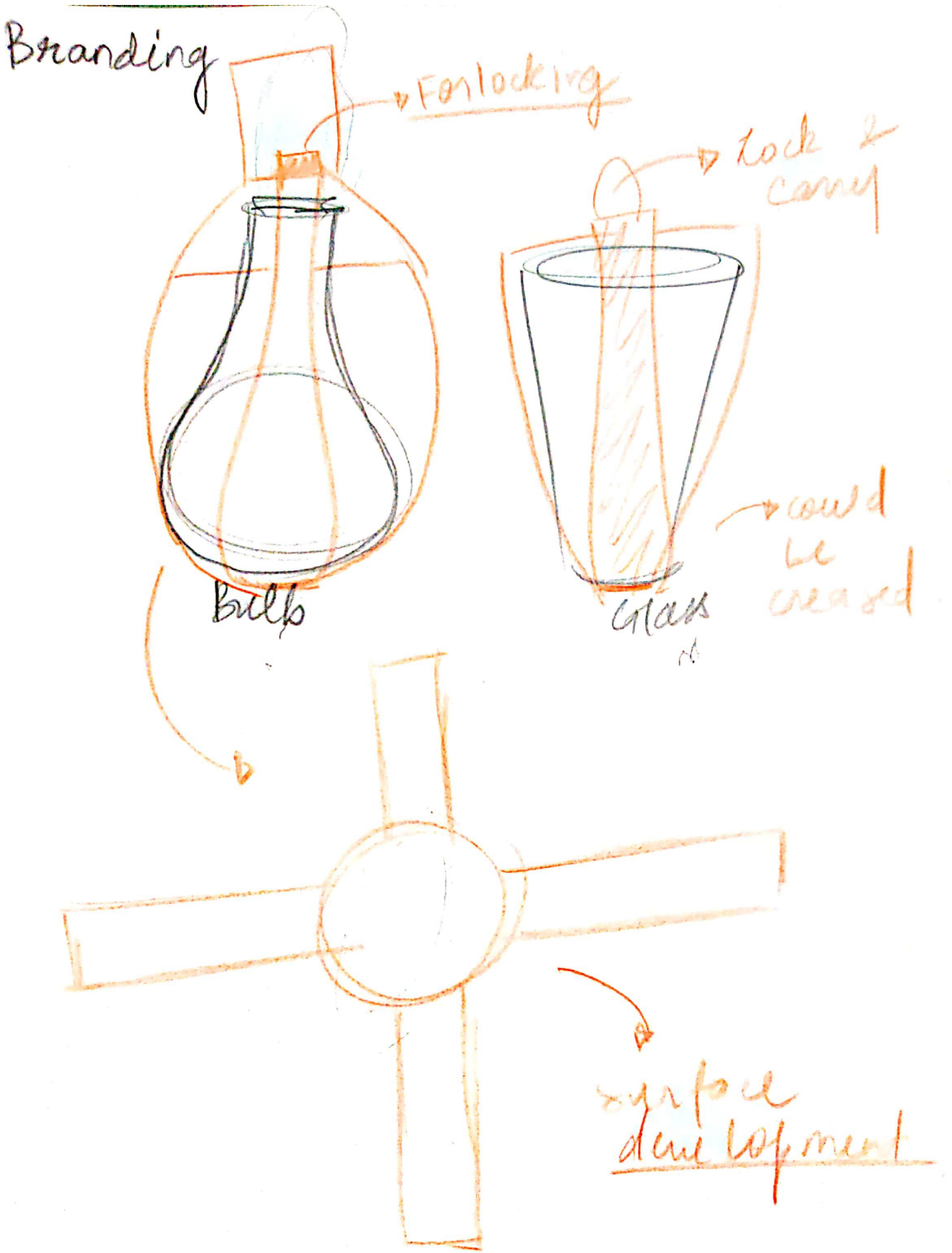

EASY TO STORE
MODULAR
BREAKING DOWN
ATTACH - DETACH
PROTECT
EASY TO STACK
STACKABLE
EASY TO CARRY
COMPACT
FLAT
SPACE SAVER
WORD
BOARD
CONVINIENCE
HANDY
FOLDING
ROLLING
COLLAPSIBLE
REDUCING

IDEATIONS

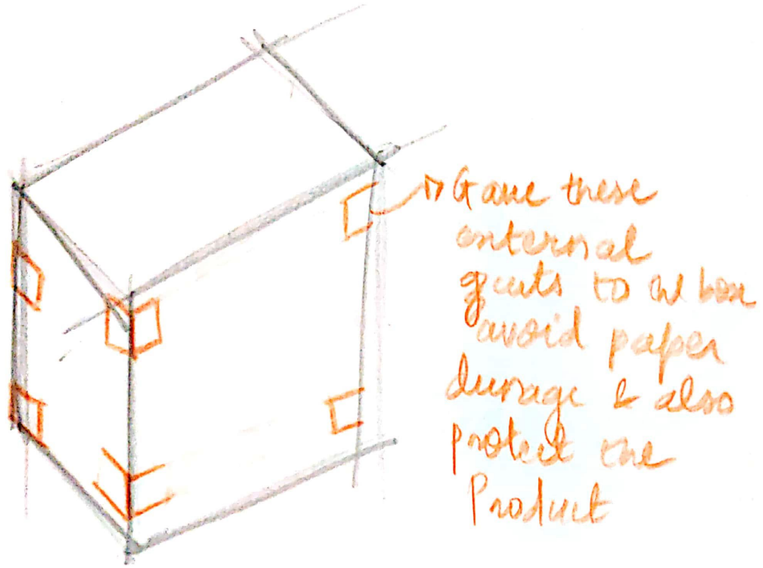
Collapsible
Attach - Detach

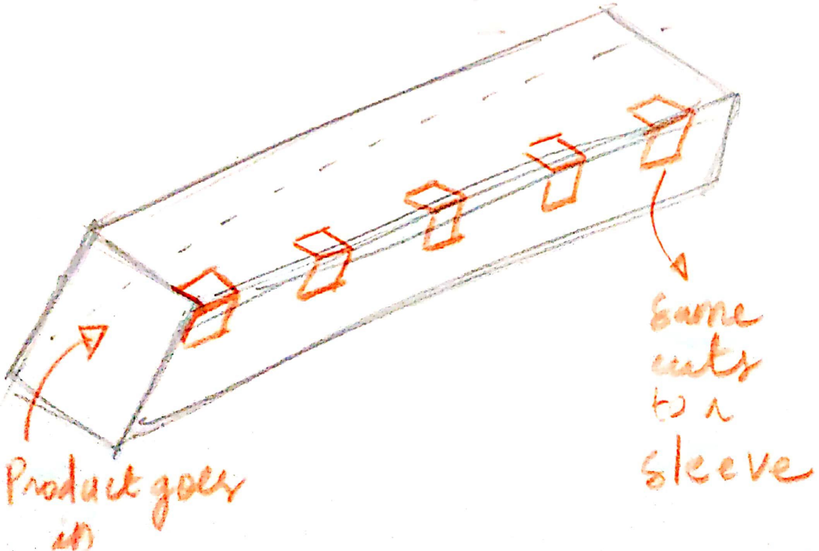


Branding

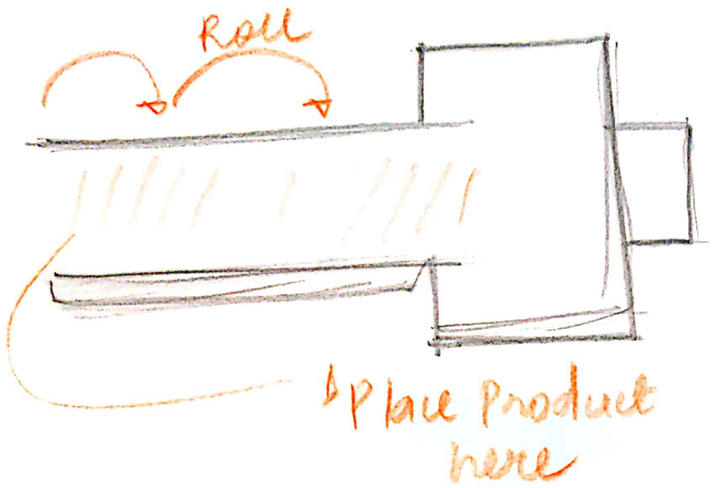


Protecting

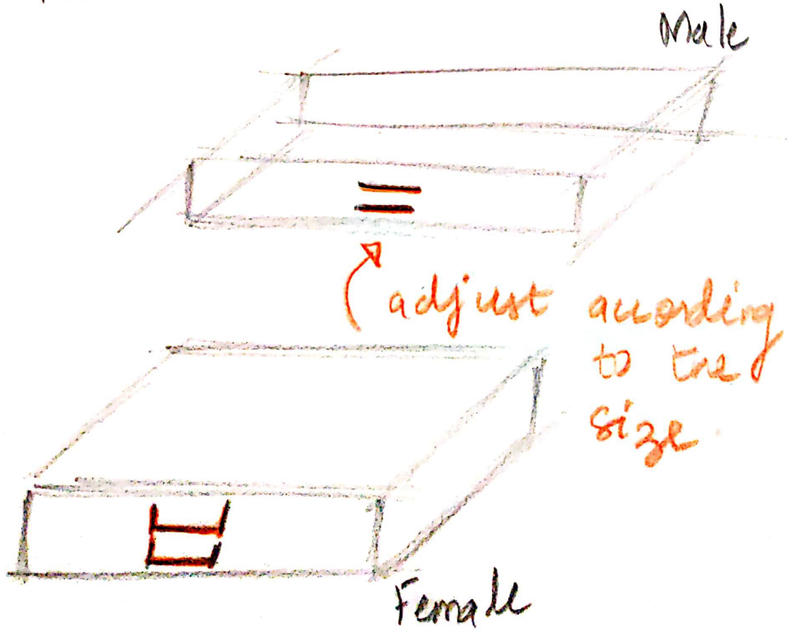




Rolling :

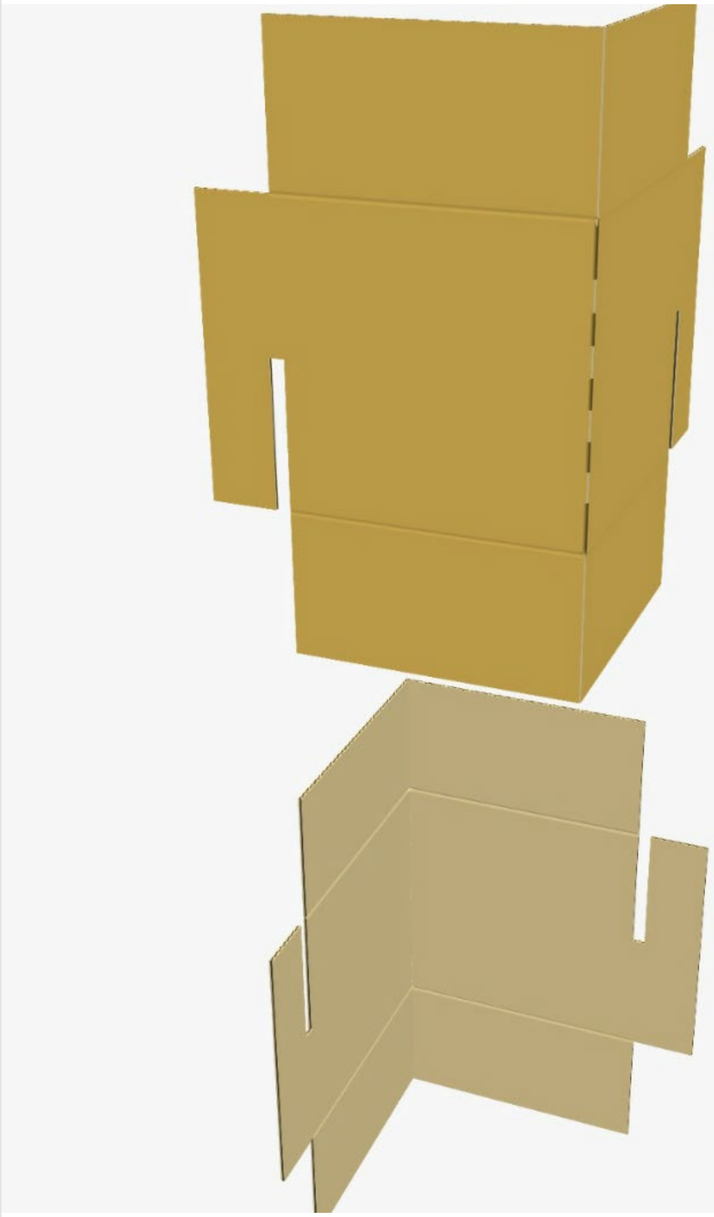


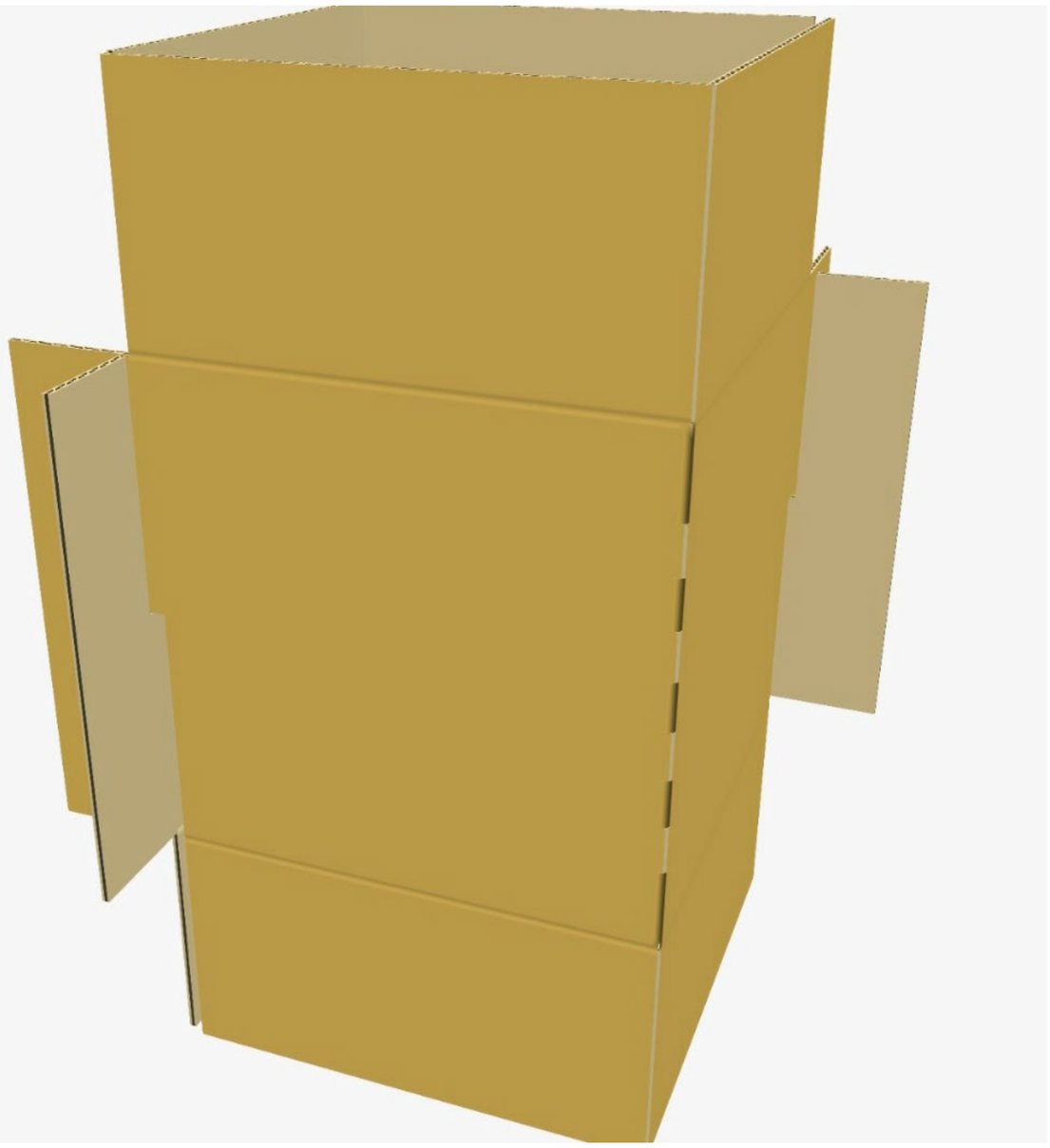
Attach Detach

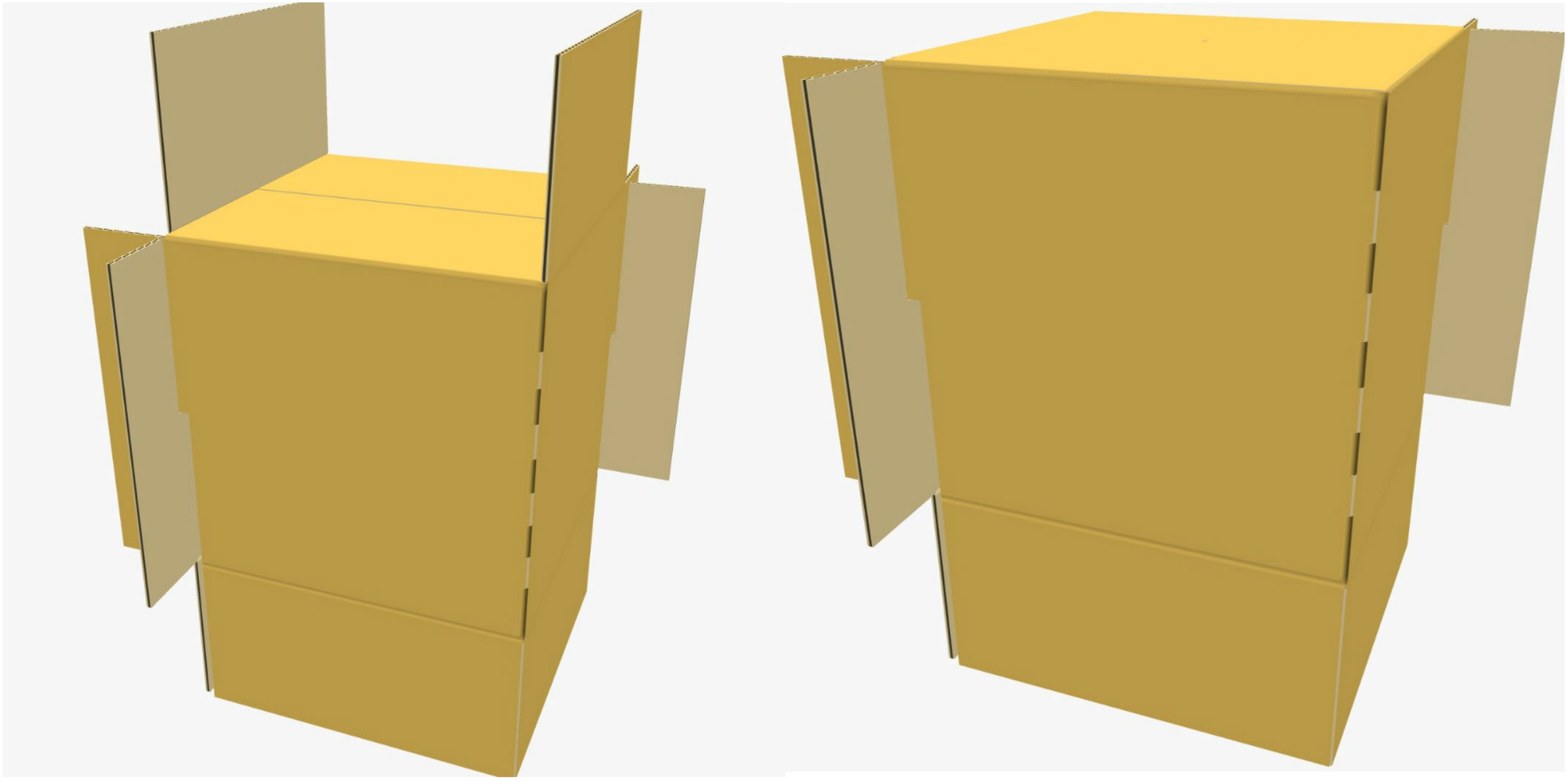


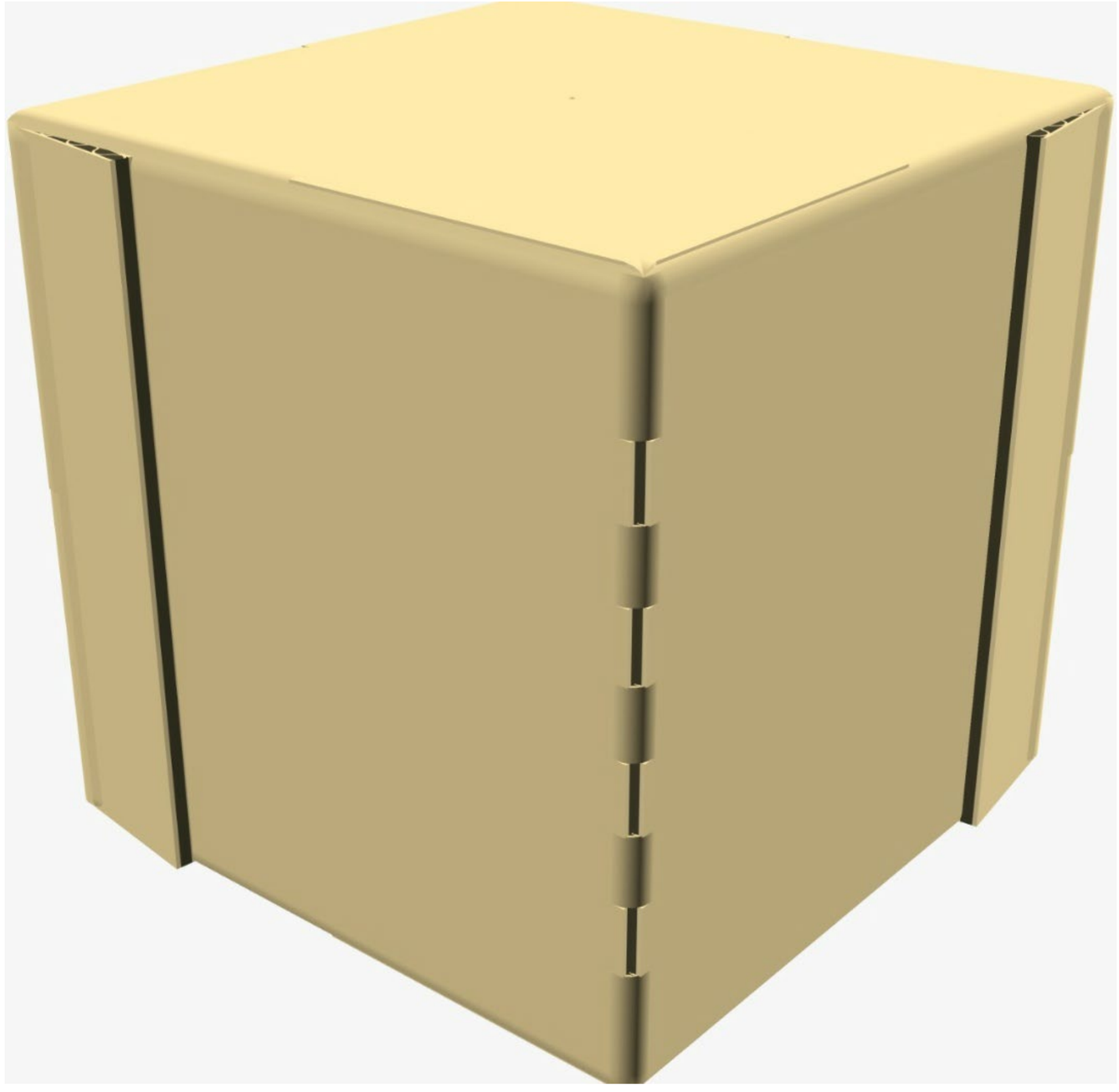
IDEATIONS

IDEATIONS









After attaching the surfaces I came up with this box which could be adjustable according to the size of the product and also avoids the use of paper dunage and protects the product inside the box.


1


Lipton
JUST
2 MINS
TO BREW
CUP IS A
FEW DIPS
AWAY
4


2
Lipton
GREEN TEA
PURE & LIGHT
LET'S
STAY
FIT

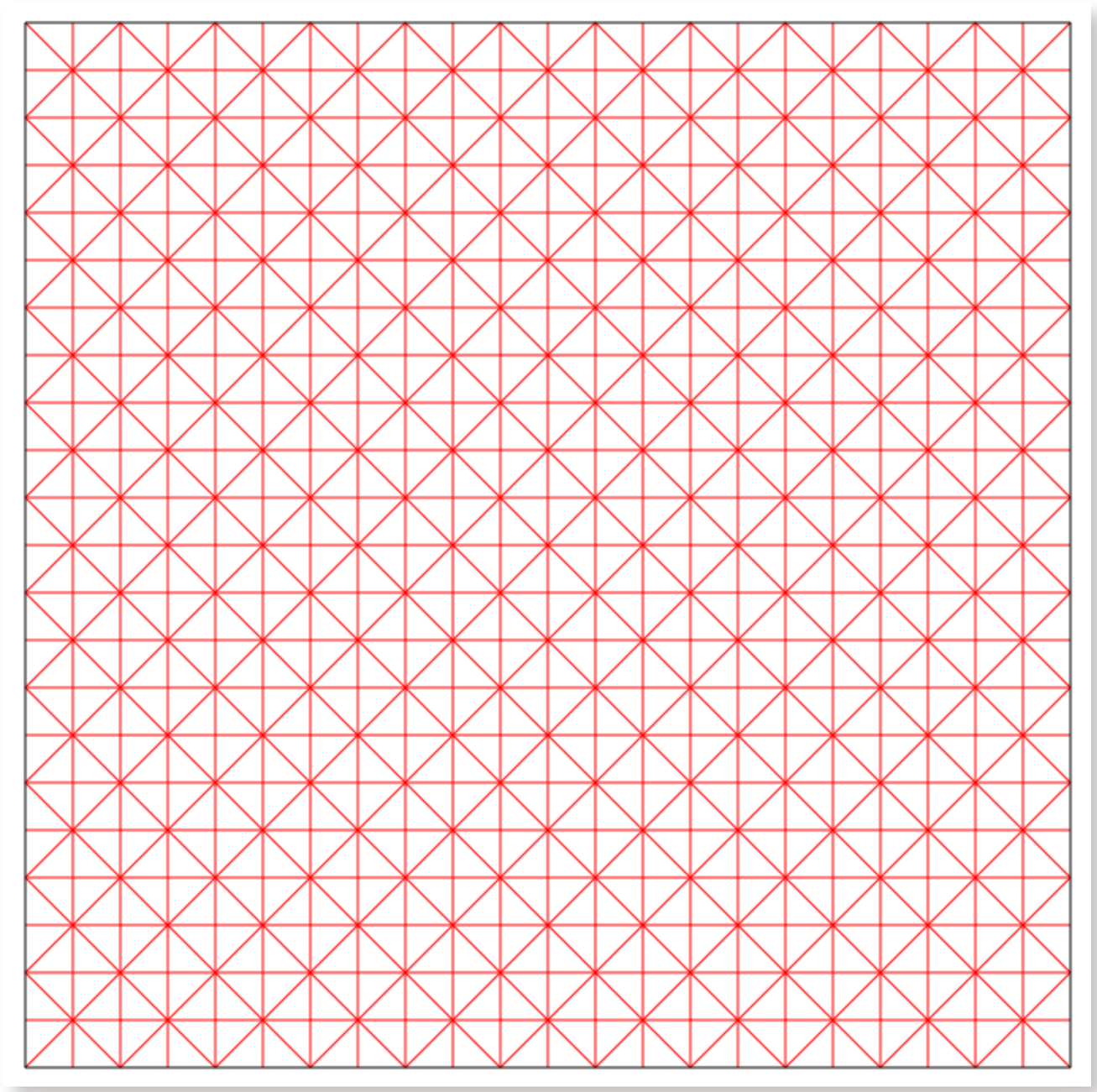

5


3
Lipton
GREEN TEA
PURE & LIGHT
LET'S
STAY
FIT


PERFECT
CUP IS A
FEW DIPS
AWAY
6


7

IDEATIONS



Merits-

Due to the die lines given it is easy for the packaging team to adjust the size of the package according to the particular size of a product.

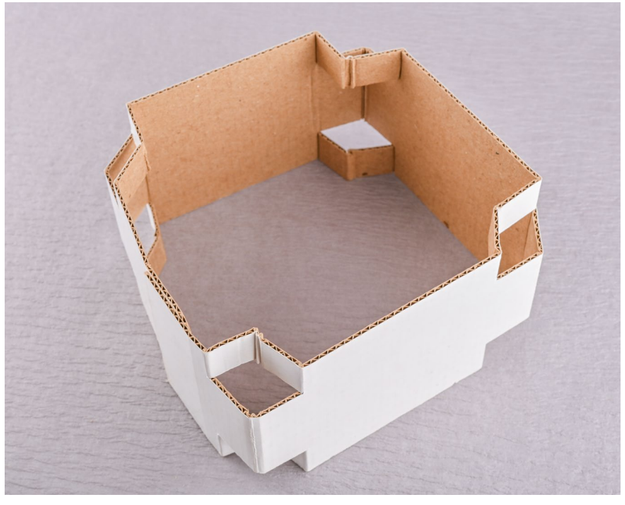
Which serves the basic concern towards excess packaging.

Demerits-

Due to the cuts given in both horizontal and vertical direction there is extra folding of flaps which generates extra waste.

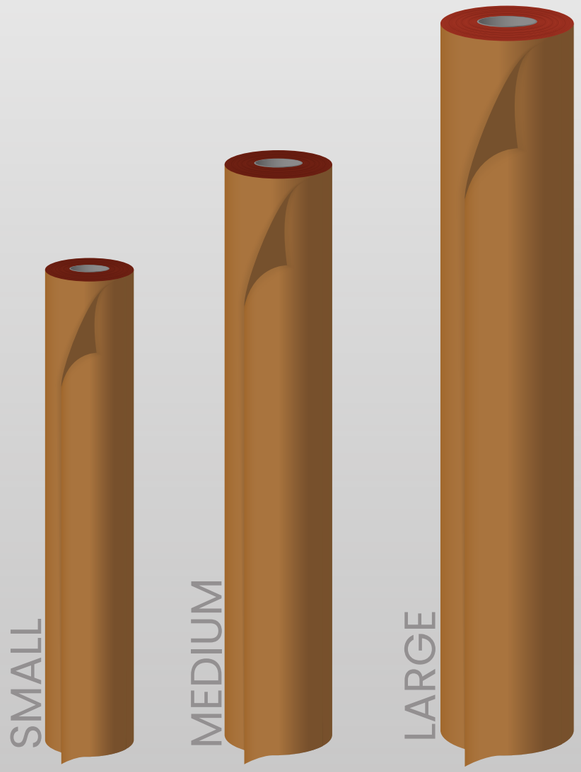
The triangular cuts given for the purpose of locking costs high while it goes under the process of die cutting.

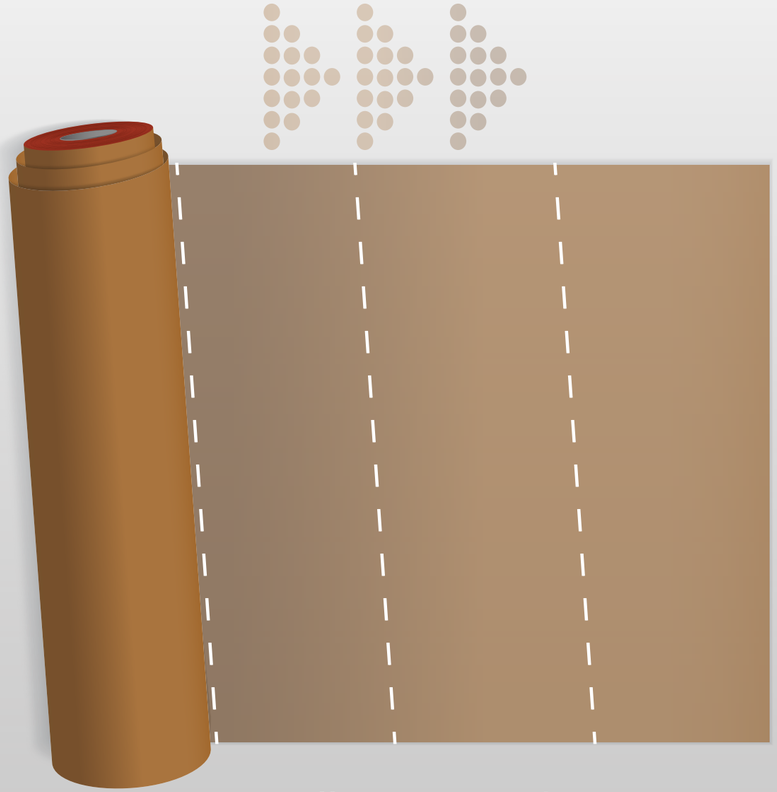
STUDY MODELS



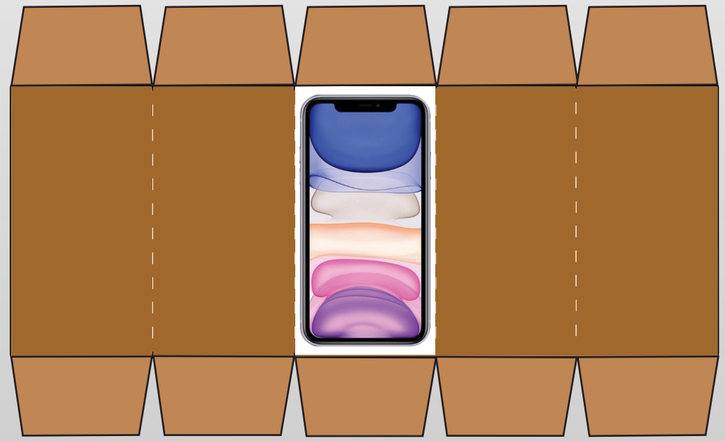
SWAPPABLE PACKAGE

CONCEPT-1

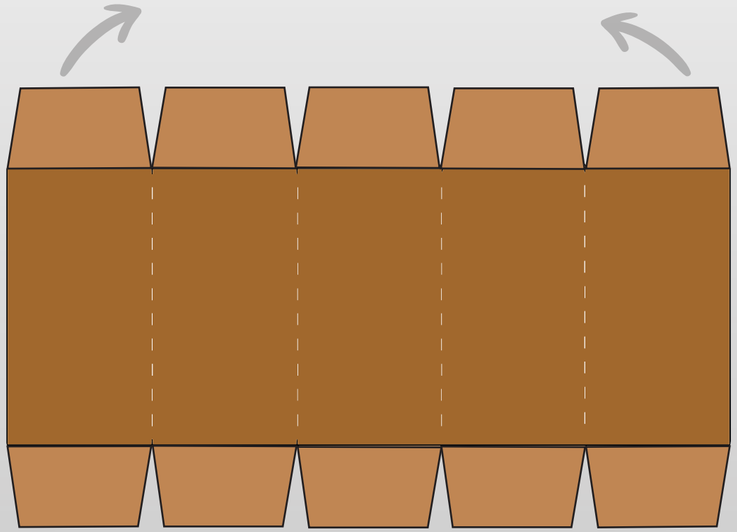




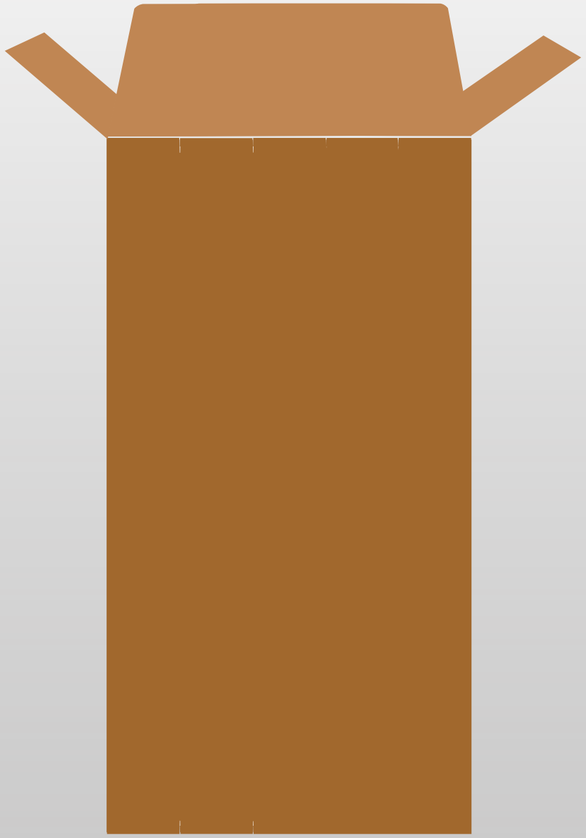
Pull Over and
tear according to the size
of the specific product to
avoid excess packaging



Place Your Product



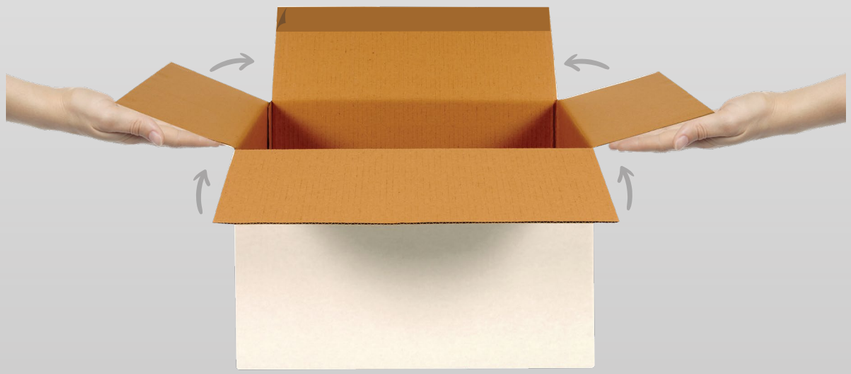
Cover your item with
the given flaps



Close the flaps

Lock the Box

LOCKING

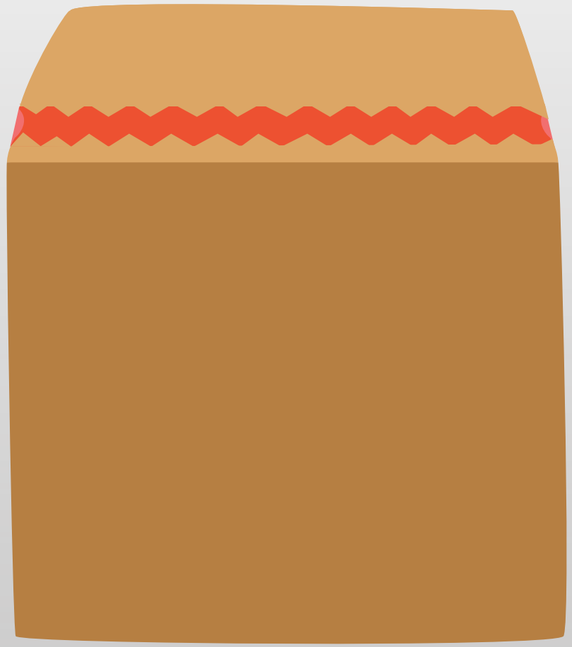


Close the Box

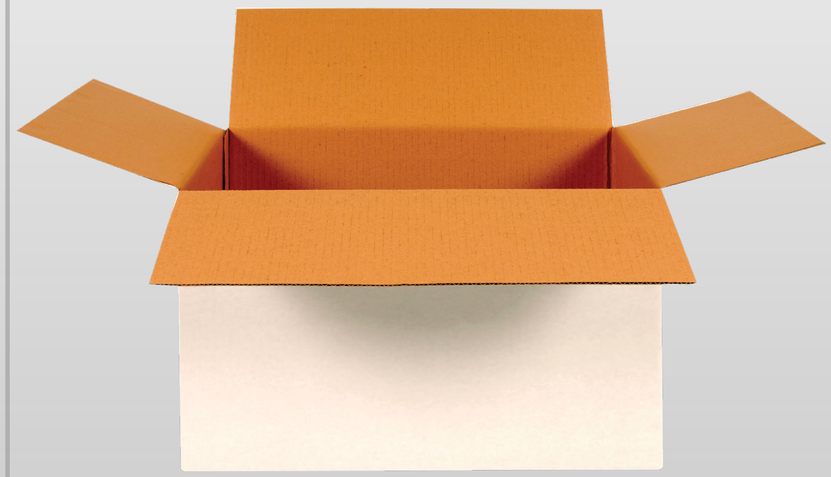
Remove the tape
to Stick properly

Press Properly
For Sticking

Tear the sealed Parts
to Open your Box

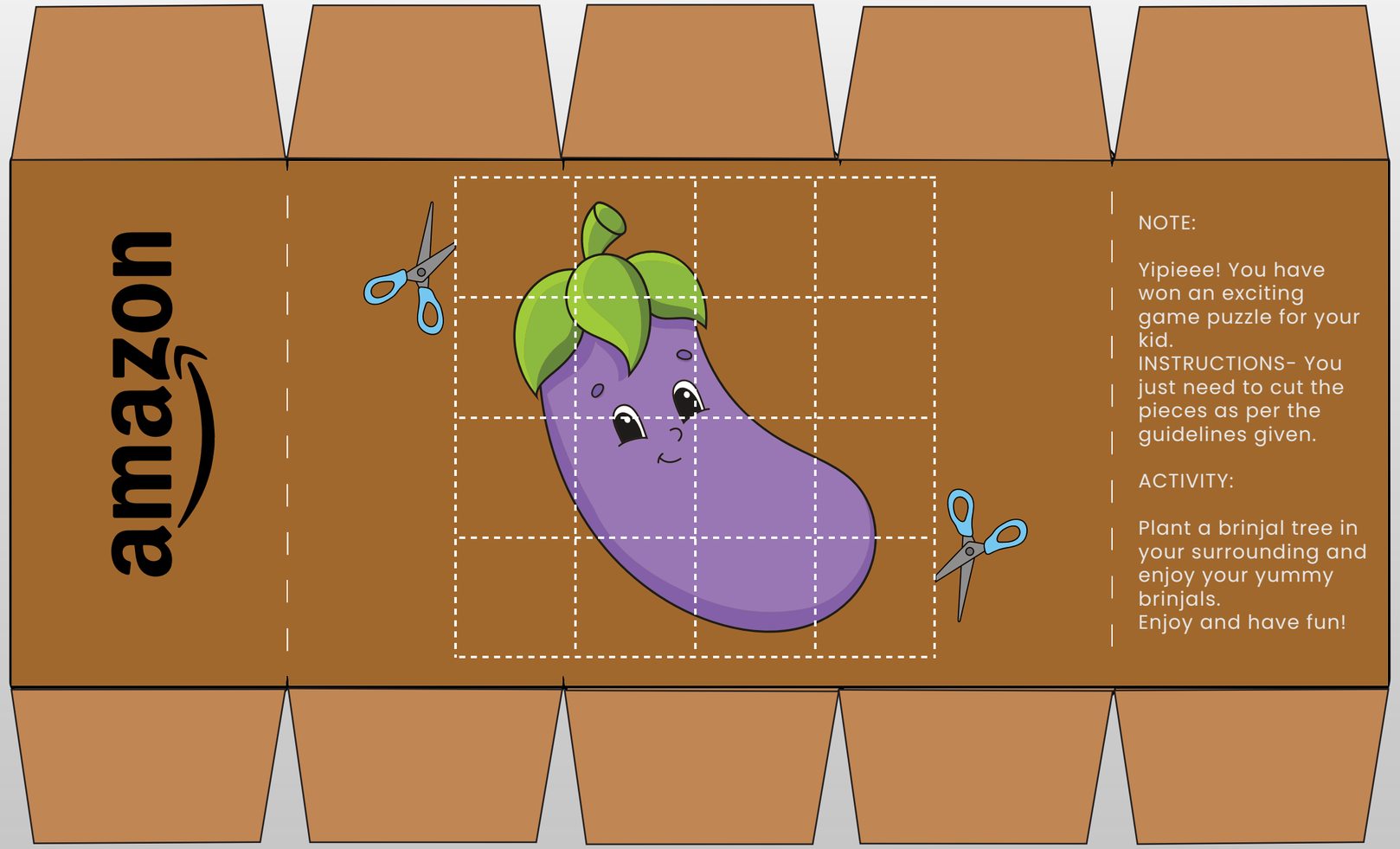


Open the Box



Unboxed

ARRANGE ME IF YOU CAN!



There will be this puzzle printed on one of the flap in the inner side of the box
The parent/guardian has to cut these pieces with the help of a scissor and give this to your kid to play, one's the kid completes the puzzle he has to plant a brinjal tree in his/her surrounding and enjoy their yummy Brinjals.
Enjoy and have fun!

Through this activity we intend to inculcate this ‘GREEN HABIT’ of planting trees in kids around them and also helping environment through this small activity.

REDEFINING THE OUTER PACKAGING

Tried to showcase
array of products
available on Amazon in the
background by keeping
it's opacity little less as the
other elements come first in
the priority list like the logo,
tagline which says
'APNI DUKAN '
and also, showcasing
other services like
prime video, amazon music.

2021

Merits-

- Adjustable packaging
- Reduces excess packaging
- Cuts the use of paper dunnage
- Increase in profits
- Fits in C.P.T timings for the packaging staff
- Safety of the product
- Showcases the brand

PURVA
SHAH

DELIVERING HAPPINESS!

Demerits-

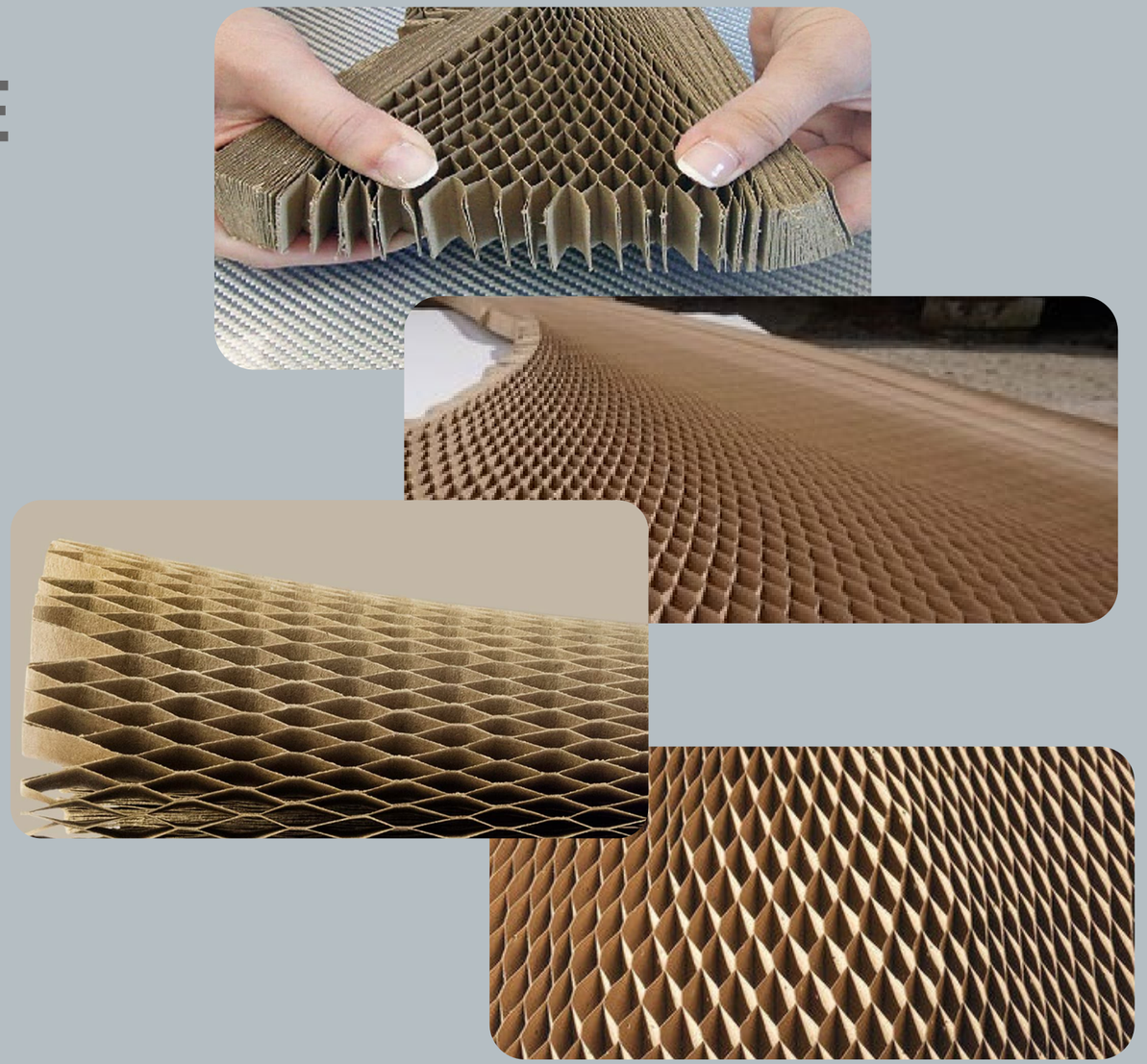
- The cuts given would cause voids if the size of any product is less then the size of a particular flap given.
- That would give rise to the excess use of material again.

HONEY COMB CORE

- It is a revolutionary product that effectively replaces plastics, thermocol, in a variety of applications it is an environment-friendly new-age alternative, continues to provide the advantages of the older materials while adding many more benefits through its life-cycle.

- Not only does it combine with cardboard, wood, steel, and many other materials but it is also more economical than most materials making it an good choice.

- As a product where Amazon focuses on utilizing recycled material and remain completely eco-friendly, it is a good option to the earth as a 100% bio-degradable and a non polluting material.



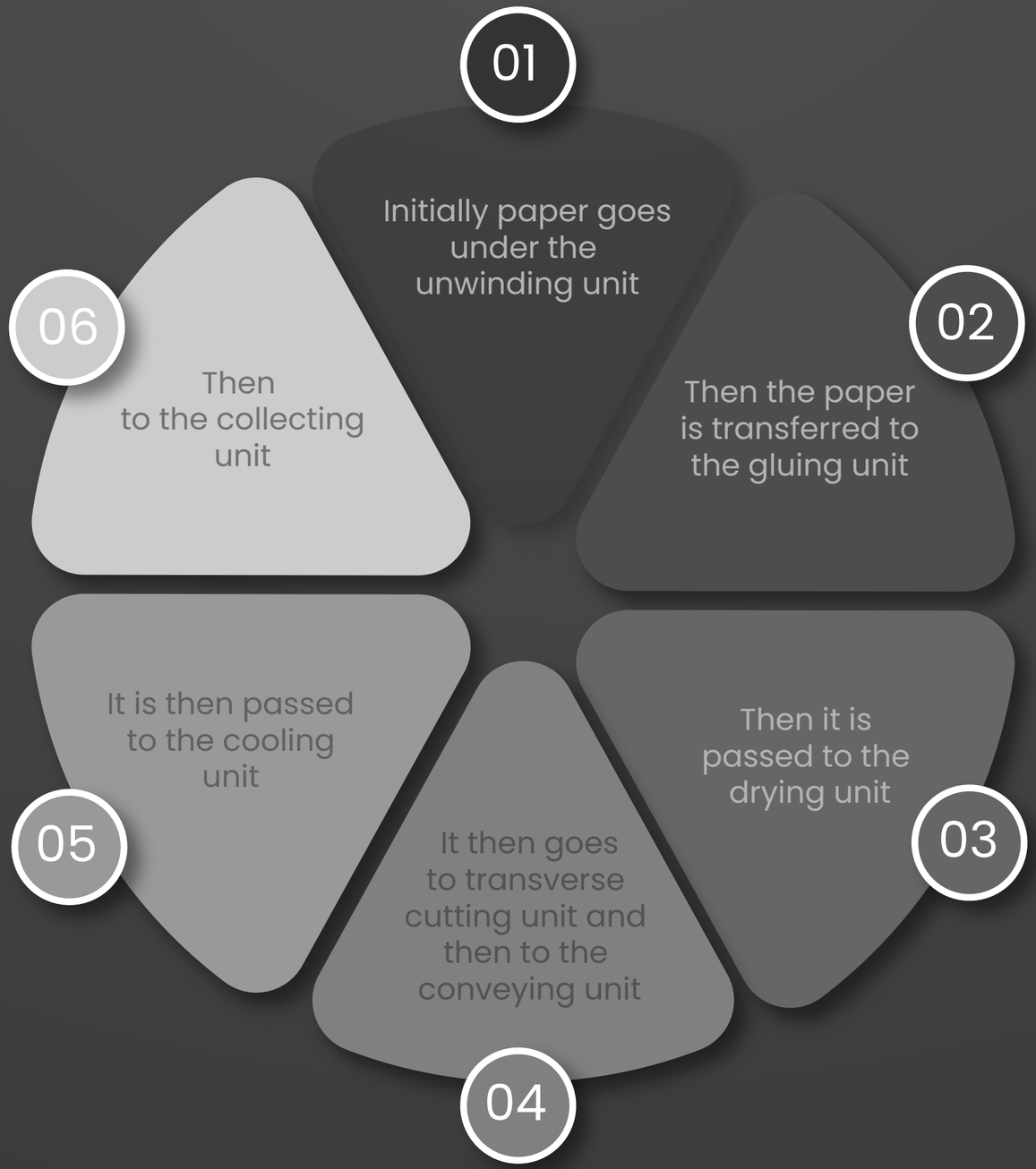
CORE FEATURES

- Has highest strength-to-weight & stiffness-to-weight ratio.
- Also, has uniform crushing strength under compression.
- It is a continuous expanded and un-expanded honeycomb core
- Shipped in continuous long lengths, also the core is several hundreds of square meter in width (max 1300 square meter) when expanded mechanically at the point of use.
- Also, certain industries require cut-to size pieces of honeycomb tailored to their application.
- The dimension is fit-to-use when locally expanded.
- We can also make pre-expanded sheets.
- This type includes the expansion of the sheets and is manufactured to the specific dimensions.

PURVA
SHAH

MAKING OF HONEY COMB SHEETS

2021



PURVA
SHAH

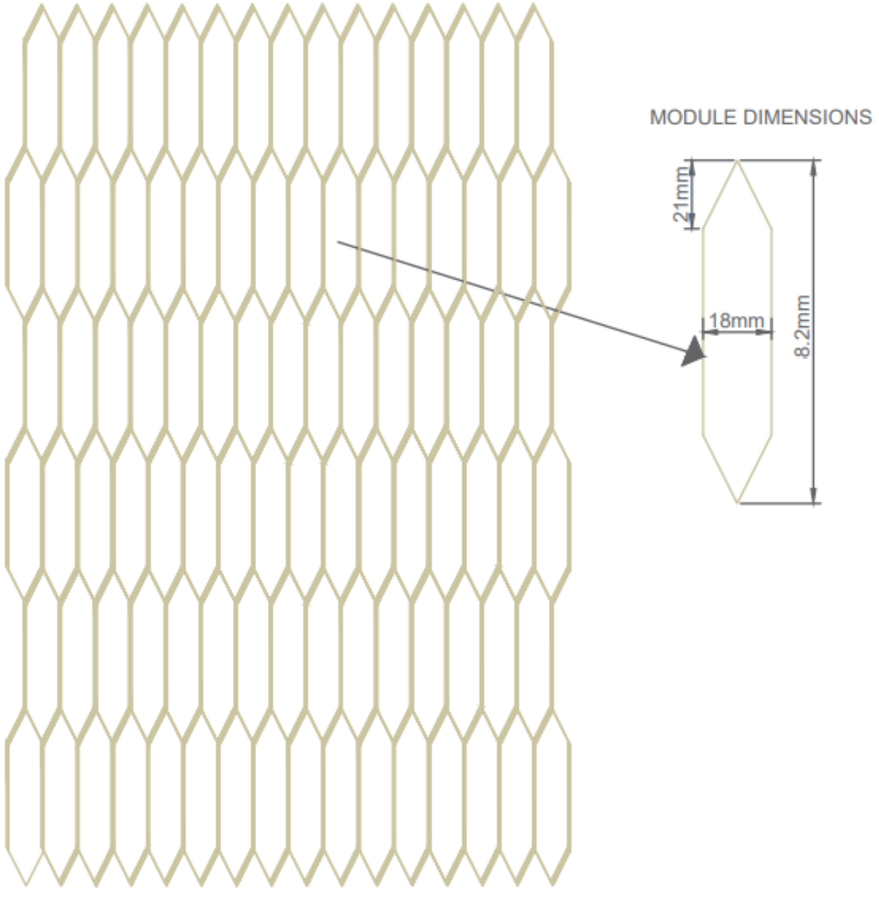
MACHINE CORE EXPANDING AND CUTTING

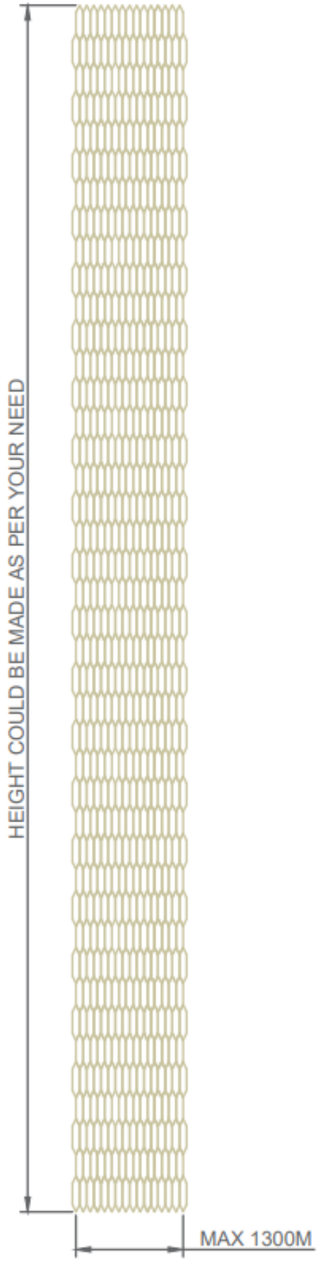
- The Expander has several important features, such as Electric Heat, Guillotine cut with a die Rule Knife Blade, Digital Temperature Controller, Digital Speed Controller, Mechanical dimensions Control and calculator, and also pull Rollers.
- The Expander-Dryer is used to expand and dry the honeycomb paper.
- Firstly, the honeycomb paper is expanded and then dried by heaters.
- After drying, the desired honeycomb paper length can be cut to the desired size.
- After the product sizes have been scaned by the cubi scan machine and updated to the system throughout this machine will cut the sizes needed for a particular product to be packed.
- The machine will expands and cuts the sheet at a rate of 1 meter in 10 seconds with a maximum electrical specification as customers request.

MATERIAL SPECIFICATION

Paper type - Recycled paper

Cost - Varies according to the thickness required
Maximum price - Rs 55/kg

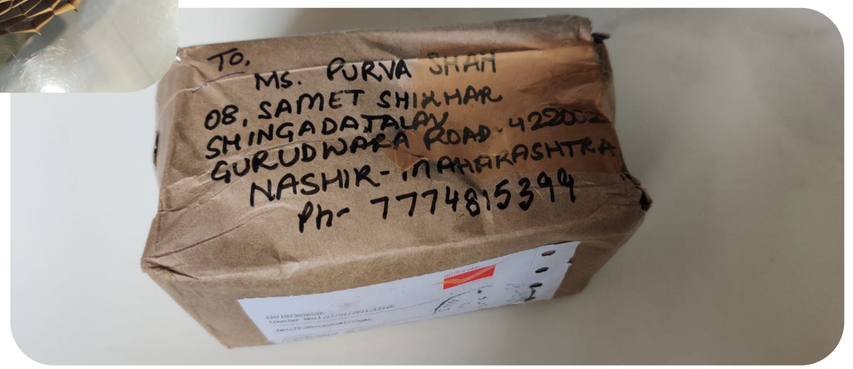




MATERIAL TESTING

- Products of various sizes and shapes were shipped to and fro from Delhi to Nashik, to test the durability of the packaging.

- These are some products sent by India Post, DTDC, Blue Dart to check the difference in the shipping.



Take aways -

- Some of the fragile products broke because of the uneven packaging.
- There were voids between the actual product and inner honeycomb core wrap as well as the outer covering, resulting in the breakage of the product due to the constant shaking and banging on other shipments.
- Also it broke as it did not have any binding agent and were just wrapped lose only with the sheet.
- Another issue faced with the broken parcel was that the honeycomb sheet used was of minimum thickness. (i.e 4mm)

FINAL CONCEPT-

- The Honey comb core is available in sheet rolls which will be converted into expanded sheets and cut into required size for the product to be packed with the help of CORE EXPANDING AND CUTTING MACHINE.

- And then will be packed with the branding tape of Amazon.

- The thickness and amount of the sheet to be used is decided by the cubi scan machine which also calculates the volume and the weight of a particular product.

- Fragile items would be packed with sheets of higher thickness.

Merits -

- Made out of recycled paper.
- Light weight.
- Minimizes the excess packaging.
- Fits in their C.P.T timings.
- Adapts the form of the product.
- The entire sheet could be reused again in the making of new sheets.
- The structure of the sheet allows maximum strength making it durable and protects the packaged product from breakage.
- The product is not damaged even if dropped from 2’5” - 3 feet.

- Also, then one can return the packaging to the Amazon where they can recycle those
and use them again in making of the new sheets.

- Where in the users would be rewarded with some percentage of discount maybe in the
form of coupons for returning the packaging back to Amazon.

- Amazon may then have the cost-cutting leverage by having the recyclable material at hand.


amazon
amazon
amazon
amazon
amazon
amazon

Thankyou!