Innovation by Design
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Module - 06
Start of section 8
Lecture – 42
Collaborative efforts: Manufacturing the redesigned letterbox

(Refer Slide Time: 00:12)

And now, when you are doing even 20, you need to; you need to consider transportation, packaging. So, what did we do? We tweaked on our dimensions, so that my top part which is a box can get into the door of the post box.

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So, we pack the top, put it into the door. Then what happens? My volume reduces and my top is protected.

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Then what I do? I turn the base reverse and put it inside.

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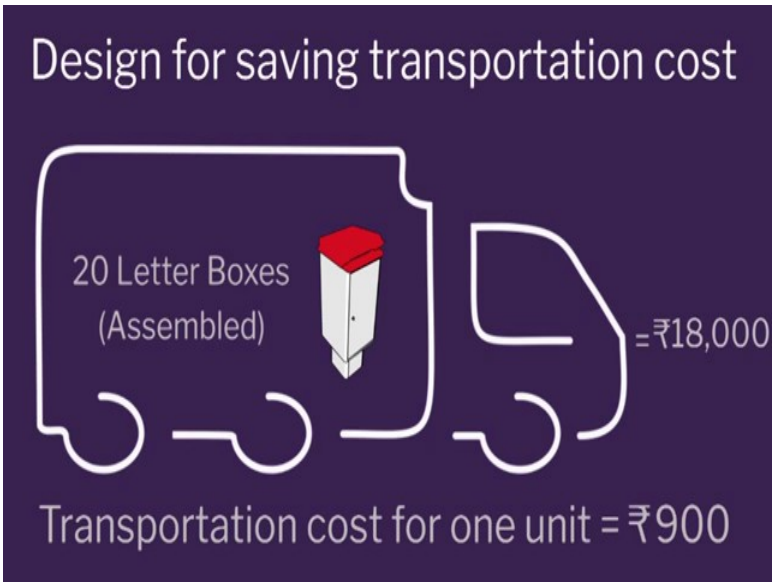

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Tremendous amount of advantage in transportation cost. Today for example, we have to send 20 boxes to Chennai, the cost of truck is 18,000 buks. Look at number 1. That is how it reaches the customer, who is my post office in a remote location.

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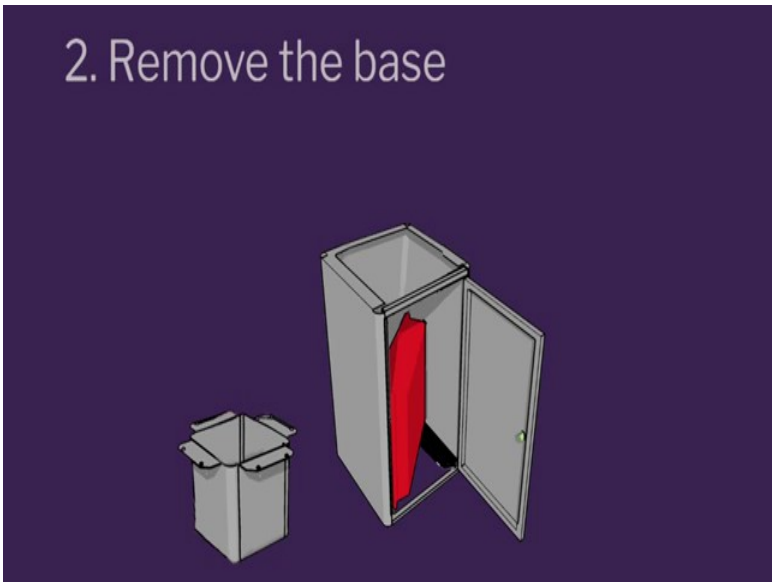

Number 2, he has to take the base out from the top,

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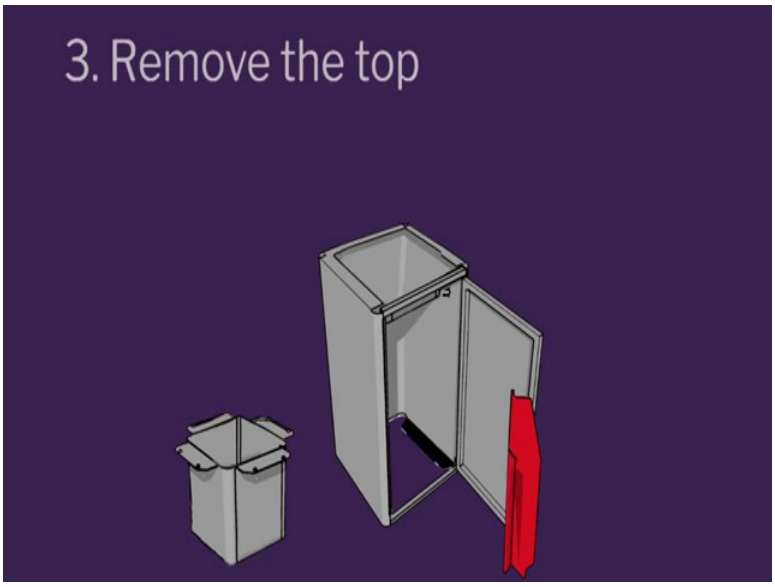

keep the base outside. He has to take the top out,

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assemble the base to the body, assemble the top to the body and your box is ready.

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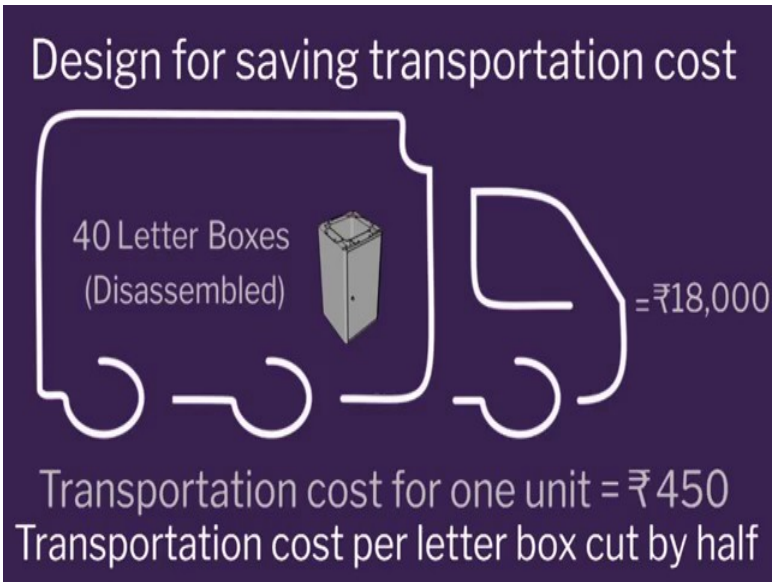

Tremendous amount of advantage in transportation cost. So, half the volume, what did we get by doing half the volume tell me? So, it is a huge cost, we never realized that packaging is a big cost in design. So, just see how we are getting into manufacturing, production, packaging in a very very close way and then the best thing happened to us when we got the order for 20 numbers and we said we have to launch all over the country.

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You know, the principal secretary of postal department went and approach the minister to launch this box as part of their 150 years of India Post existence. So, this is the interesting story of how we started with 20 boxes and to our surprise as soon as the program happened; now everybody knows about the box.

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So, look at how design can flow. So, everybody now knew that there is a new box. So, they then said we want at least 200 boxes to begin with. So, then we took the challenge again, the challenge was to collaborate with large scale manufacturers, we again

approached Jindal, they produce the best stainless steel for us, they said no problem, we will give you low nickel stainless steel, which is cost effective. Nickel is the one which gives shine in the stainless steel.

So, look at what happens, you can even change the metallurgy of the raw material, if you are with the manufacturer. So, designers have to reach that level, if you were to have a successful product, that you change the metallurgical composition of your sheet, which is produced, so that you can have cost effective products.

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So, stainless steel sheet was produced at the Jindal factory, then we had GE Plastics, which is the largest plastics company in the world. We had only had 20 boxes all over the country. So, people started recognizing us, they came back and said, we will help you produce the engineering plastic.

So, look at that engineering plastic we produced, GE has a big plant in China and I wanted red color, because post office red is very important color. So, they did polymer processing in China, brought the granules to India, did the extrusion; look at that extrusion machine, in the bottom, extruded the sheet in Ahmadabad and vacuum formed the sheet also in another company in Ahmadabad and helped us develop the top of the box.

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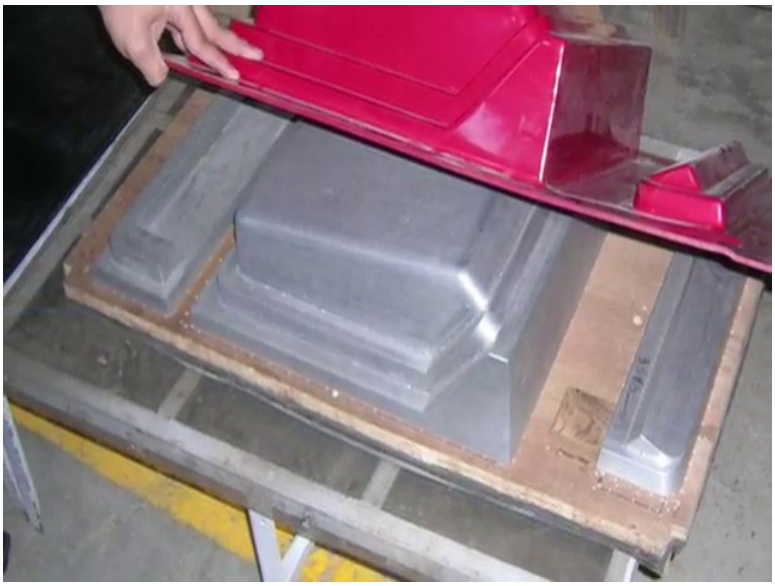

So, now, we are using engineering plastics, but you are using vacuum forming tools, which are low cost. So, from there then we went to Godrej, the CEO of Locks Division came to us and said Professor Chakravarthy, we like to be part of this project. Now, look at this beauty; people are coming on their own and saying you want to be part of this project.

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And we could get the best locks Godrej Locks onto the post box, which are non rusting locks. Then again CNC manufacturing happened from Jindal Architecture, then a very interesting problem we were facing.

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Our vacuum formed plastic parts are different different parts.

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You need to adhesively bond them and I was always very skeptical that adhesives will fall off. How many of, you know, that the aircraft wings are stuck with adhesives? So, today there is so much technology in adhesives that you can actually have the adhesive

stronger than the virgin material. So, if I stick a plastic and a metal, my adhesive will not come up, but a plastic will break, because metal is stronger. So, we have adhesives of that quality.

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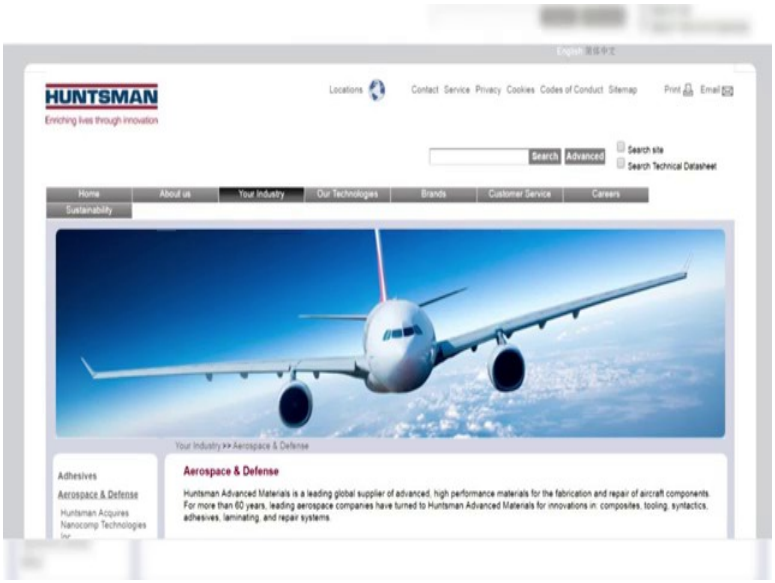

So, we went to the best adhesive manufacturer called Huntsman, who make adhesives they were in Hyderabad and we produce the adhesives which will join these plastic parts, so that the box is integral and nobody can come and back away the top.

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And then we are supposed to bolt this box in the floor, right. So, for bolting the box in the floor, we went to the best anchor bolts HILTI, which produces these bolts, which are, you know, drilled into the floor and then there they got different types of bolts they suggested a bolt which you should use is called chemical bolts.

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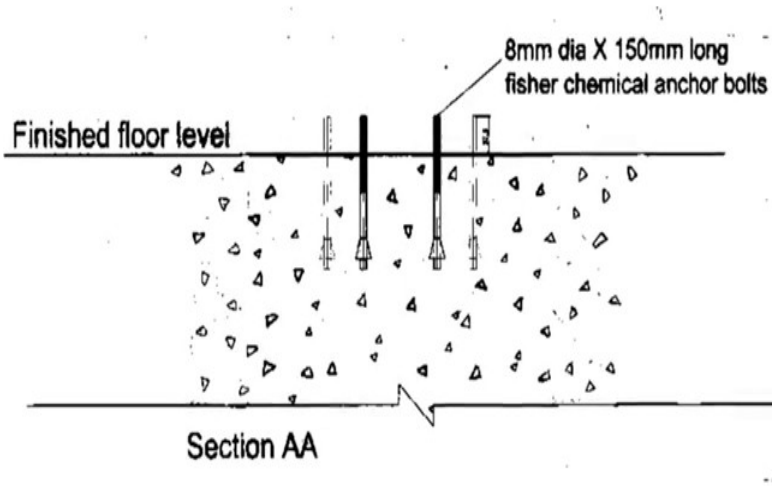

So, it releases a chemical and locks in the floor. You have a concrete floor, you can lock this bolts inside and bolt your box on top of it. So, you can take out the box whenever you want.

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So, they got the best anchor bolts in this. So, we had an all round, you know, process.

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And what are these small models doing here? You can see my computer and scale model; promotion, marketing and promotion is a very very important component of design. Now, everybody we launched during the event, so we made 200 of these boxes your miniature should be better than the original right. It can't be like a *Khilona* (Toy), it has to be very good. We went to the same manufacturer who coat bumpers for the grills

of cars and we got one the best coatings of, you know, chrome on an ABS material which is injection mold in abs.

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And we made this really good then we made a real brochure on this with all the advantages of the box, maintenance proved, very tough, easy to use, good place for advertising, all those things on the box. So, that we sell internally in the within the post offices as well as the people should know what the advantages are the very important component of promotion and then here we see how we, you know, went ahead with collaborative innovation of user friendly design.

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We use very high tech manufacturing, we have high quality materials; every material uses high quality and contemporary, then we also made, you know, conveniences for very everyone; the user, the, you know, people who are collecting the letters as well as the people who are installing the post boxes as well as people who are carrying the post box, people who are carrying to the locations.

So, we considered all our users from the primary user, to the secondary user, to the tertiary user. We have a very very elegant and modern look and, you know, and it is also revenue generating, because you put advertisements, your cost of the box can come back in 2 years. So, this, you know, was a very interesting, you know, case study where we could do all the aspects, you know, very effectively in the design.

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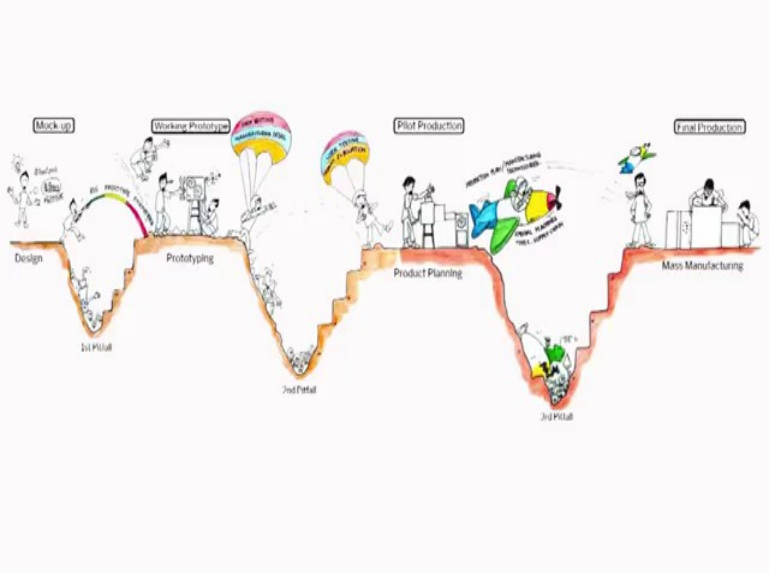

And then we reached now, we, you know, second value of death. Till now we are still in pilot production in mass production what happens can I do mass production? I can't; I have to have manufactures to do it and then when 200 boxes went into the field what will happen to the users? There will be tremendous amount of input which the users will have. Input means, we will get a lot of feedback. So, I must tell you that we got, you know, a lot of feedback and I will keep the suspense till the next class where we will show you how we got the feedback and what we did.

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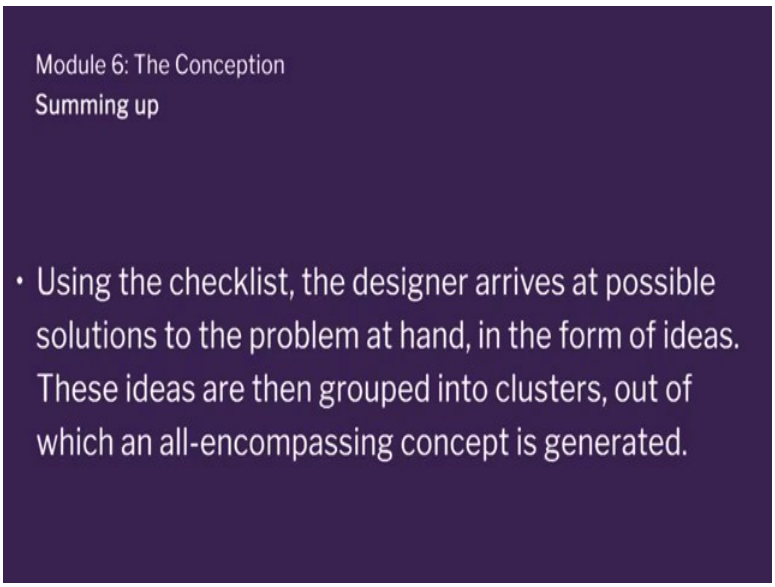

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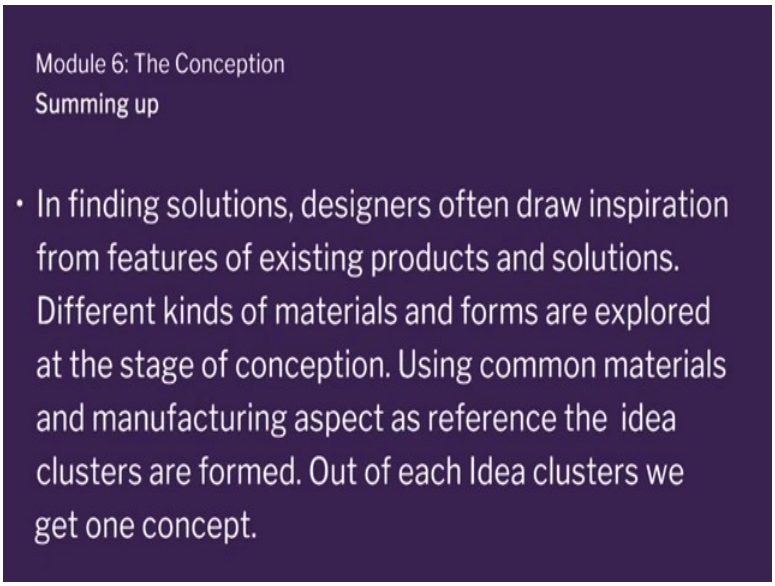

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