Innovation by Design
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Module – 07
Start of section 5
Lecture – 47
The iterative process
The final Design

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So, now look at this, make a round shape, use the same high tech rolling machines, get a flat front and we went this with this model. We made a small model this time we were like careful, we made a small scale model; the size of, you know, your 15 centimeter scale and we took this model to India Post directly to the Ministry to Delhi. And they said no, no, we told you round. There is a flat front. I said; how does it matter? Flat front is convenient for people to take out letters, right?

If you open a flat doors, it is convenient to take out letters, so we put the flat front, they said no, no. Now, they become very rigid, we want round as round. Now, we are facing the music, we said, ok, we will make a round design and we redesigned using the same materials, better manufacturing and went back, you know, I am showing you how we

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went ahead making the CAD models,

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the whole structure, the different parts in that the landings, the door in round shape, the, you know, the top posting slot in an interesting shape to, you know, match the overall configuration of the post box. You can see how we made the base also now with the radius structure inside with a round, you know, round base we could have had a square base, but be now we did not want to take any chances.

And then we suddenly got a call again from Delhi that we have got this commonwealth games happening and there is a large exhibition and we need to put up this new round box in the exhibition. So, from CAD modeling, we had to rush to prototyping. They wanted a single piece.

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We got all the, you know, stuff out, we went to local craftsmen, look at that sheet that looks rusted, but, you know, when it is treated, it becomes shiny. So, they rolled that is a rolling machine on which you roll your sheet.

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Then you do all the fabrication by welding, all the surfaces are all weld together.

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Then you do the painting, we did the painting processes, painted them after treatment. So, that there is no rusting inside.

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And then we did the top the round top, we learned our lesson. So, like we did the hinges, the doors, the details built up; we had the whole team to work on this.

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We had experts a team of ten people working on this at that time and then we put up one near our main building just for photography and, you know, like we sent this prototype to Delhi. And they put up in exhibition, the Secretary is very happy, the director was very happy in India Post. Wow this is the in thing and then interesting thing happens; the Secretary also retired. So, we were again in a fix, we waited for a long time 6 months, we waited no no result came up and then the new Secretary came up, who knew our work earlier.

So, he contacted us saying, what is happening to your post box? He asked me. I said, my God, this is interesting. Let me get back to my old design. So, I leapfrog to my old design and said I have the box I just there is a problem only with the red colour, I just painted red and its going to work for you. And I am going to change the top to a rounded top marry the old and the new and it will be worked. We put the old and the new during Techfest exhibition in IIT and then we call this man from Delhi, he came and inaugurated the, you know, sort of exhibition.

So, here we have again the square box, painted red, because it is an advantage of manufacturing in square, you know, you fold very easily rather than rolling and then, you know, we sort of, you know, like did the tooling now.

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Now, what happened is by that time we realized that one of the 200 boxes when the plastic top went people thought that they could recycle the plastic. So, people were actually stealing the plastic tops. GELOY is a difficult material to recycle they were not able to sell it, but nevertheless they would put a bamboo rod inside and whack it out and go and sell it, plastic was not going to work. So, we went back, we said we will make a metal top bolt it to the, you know, to the structure,

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so, that nobody can, you know, sort of take it away. So, this is a tooling. Now my team from IDC start working. We made a die, this metal die.

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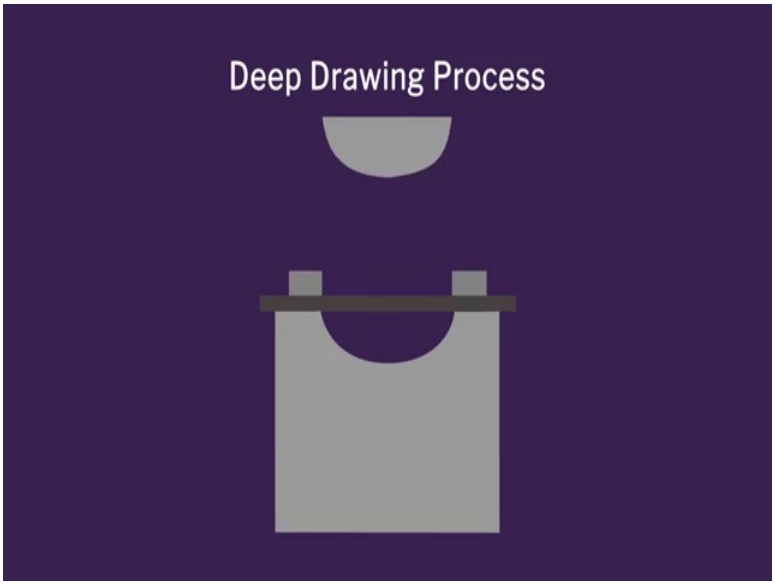

We did deep drawing; deep drawing is a process where you have a sheet metal and you have a large press which presses the sheet metal to get the shapes. All your car bodies are deep drawn, the rounded shapes of your car bodies the large tooling and dies, but this is a very small one for us.

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So, we did these metal tops.

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So, this is the top and this top what is interesting in this top is, its got a feel of the old and the new. The round is from the earlier design and the square is from the new design and when its in red color, it was very good recognizing, people had no doubt that it was post box. So, which is the best part in design? So, we went ahead in the process, we, you know, fabricated the top, we did the deep drawing, we got the sheet metal part out and we painted it. And we so excited about the whole journey that we published a book on, you know, the design read through to see the whole story of how the design process went. So, here we are, now we would like to take it to mass production, we didn't do a very good survey very initially, we were so carried away by the city users.

Everybody said good, the paper said good, but finally, when it went to those areas and district areas we got to know that, you know, the its very difficult. So, I will, you know, quickly show you through these models now. So, as we just to summarize.

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So, we had the top which is big. This was the first 20 numbers we produced, the box was, you know, manufactured through CNC. The beauty about computer numerical control manufacturing is that you could actually manufacture 10 or 200 on the same machine which is the beauty of mass manufacturing in these machines.

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So, next we went ahead and changed the top as, you know, this was the 200 numbers which came in and these 200 numbers, you know, well received, but then we realized that the problem was with identification.

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And then the final aspect which come up was this design where you can see that, you know, we retained all the, you know, beautiful aspects, the color is red and the top is round and the full thing is in metal. So, that is the final design which came up. So, it was a good example of crafting where you have, you know, you have engineering strengths coming in, manufacturing strengths coming in and a lot of innovation from point of view of contemporary materials from plastics to metal to stainless steel.

So, finally, what we did was, because the stainless, because the stainless steel is not using the shining property right and that is a costliest part of the stainless steel which is called nickel. So, we now have a material which is low nickel stainless steel. So, in the low nickel we have a low nickel stainless steel and on the low nickel stainless steel, we are doing powder coating.

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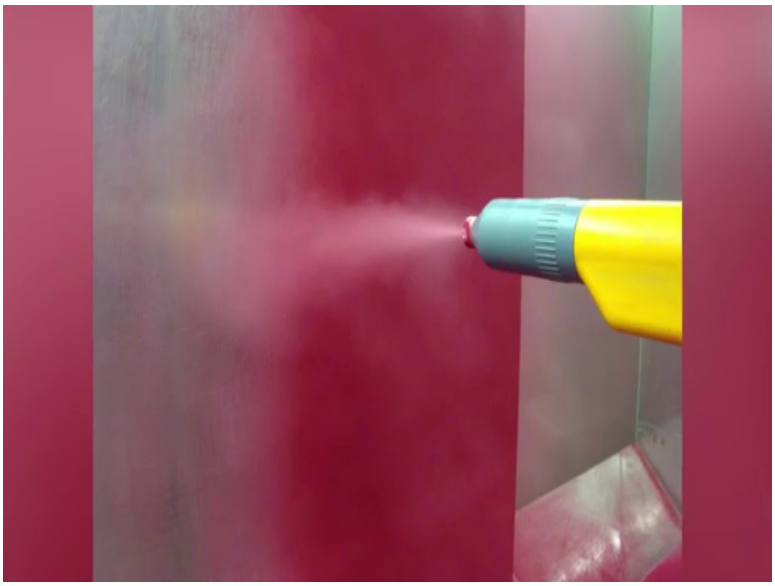

So, there is one more protection; so now, that is going to work very well in this aspect. So, I thought I will just show you this total journey because this reached a stage of pilot production, going back to original concepts and the To and Fro happened nearly three times and still we are waiting for our sort of, you know, approval to go into mass scale production.

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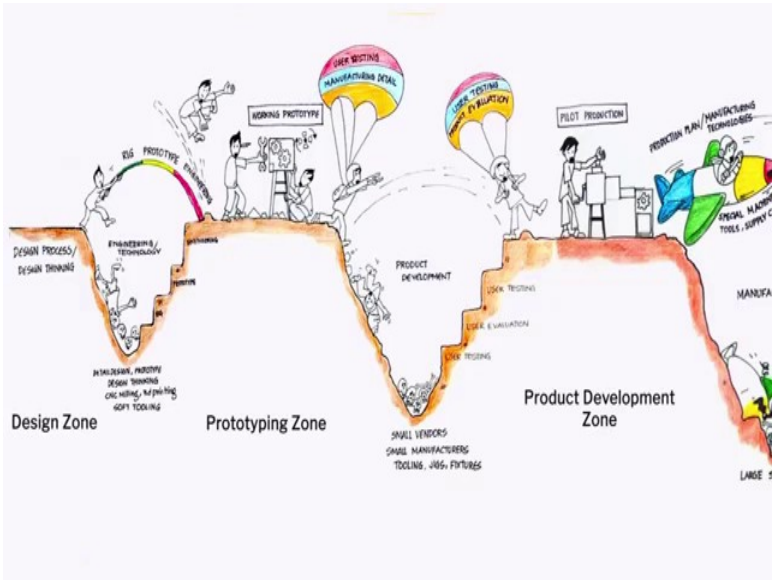

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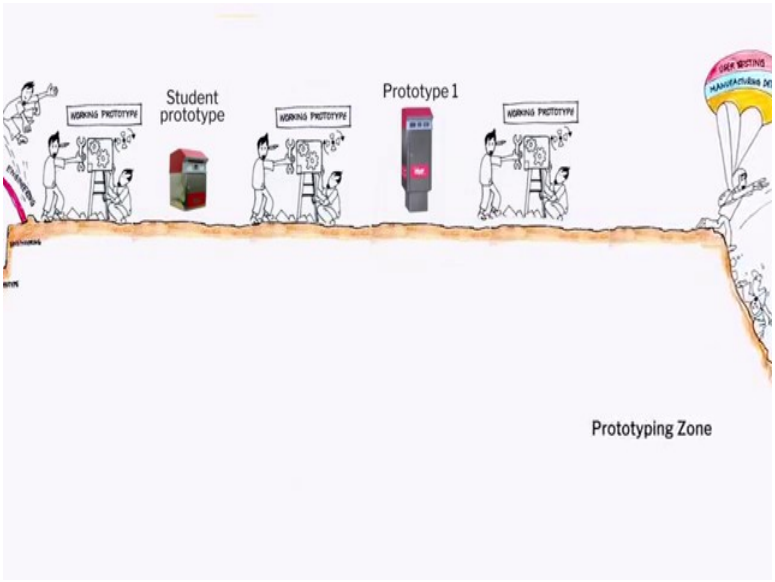

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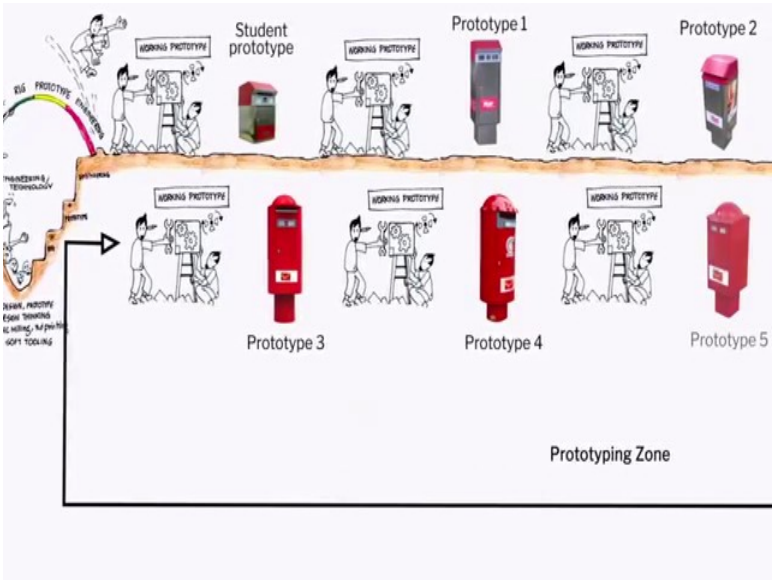

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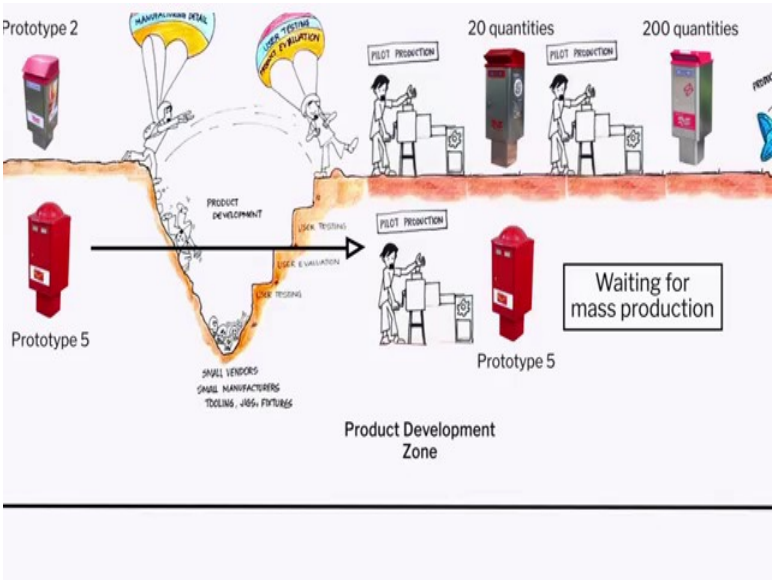

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