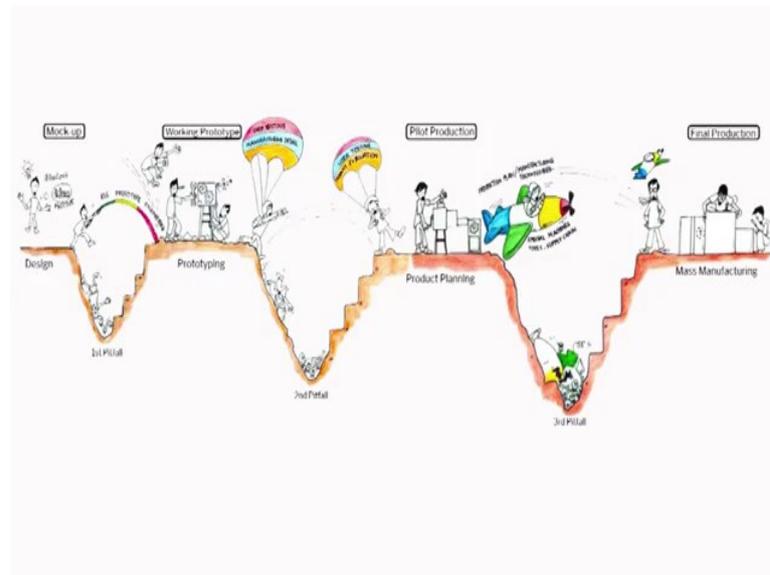


Innovation by Design
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Module - 06
Start of Section 6
Lecture – 40
Prototyping: At the first valley of death

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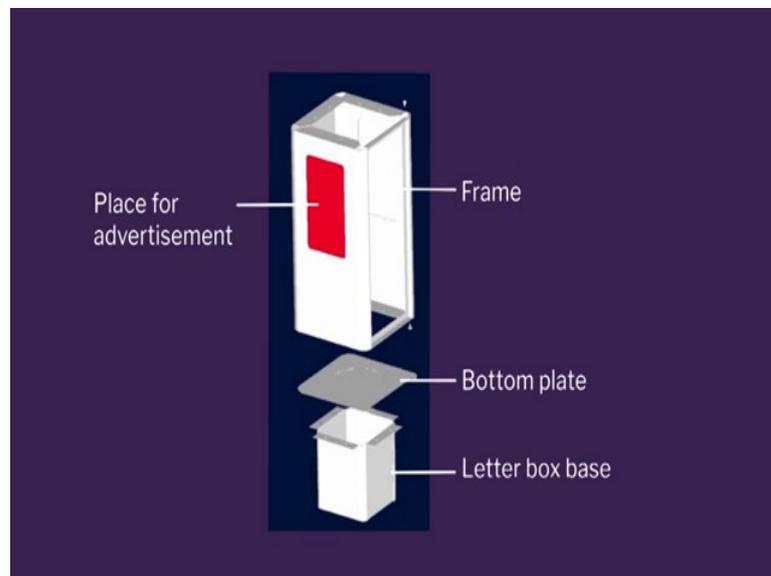
So, from here when you go to what is called the first prototype. So, how do you make the first prototype? Will you go to large manufacturing places or will you go to small manufacturers who are craftsmen? You will go to small manufacturers who can make one off kind. So, they generally craftsmen, blacksmiths, who do just one product, they will keep hammering and, you know, all these things how they make utensils and all.

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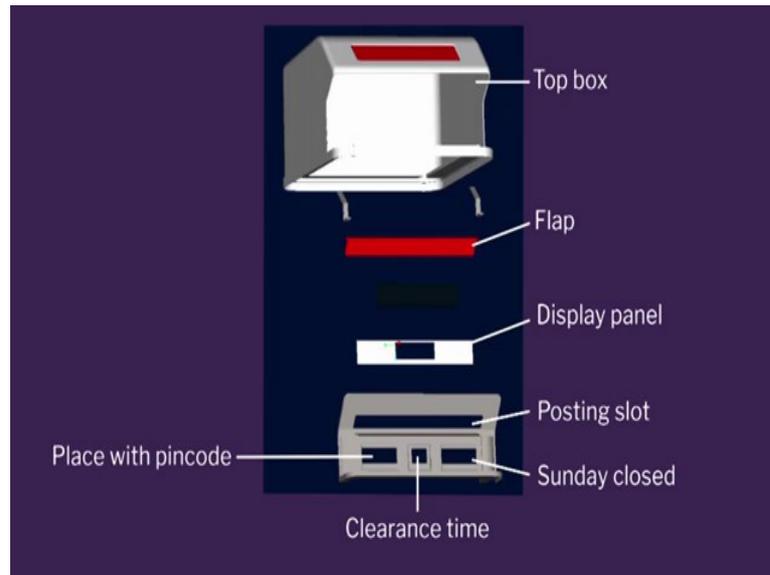
So, we went to one skilled manpower and we started, you know, fabrication of this post box after we did all the detailing in the CAD modeling.

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So, in this you can see how the whole box has been detailed out. How you do the frame, you know, how you do bending of the frame, how do you put the plate in the bottom, how you put the base, how do you bolt them together, what type of door will fit, so, all these are independent components and all those are done through Computer Aided Design and you can get very very accurate shapes and very very accurate surfaces.

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And then you also have multiple parts for the top, which is made out of plastic and this multiple parts are very important because you just can't make the whole shell in one go, because they are different moving parts, there is a flap, which lifts, so the letter can go in. So, all those are very very critical aspects.

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So, here comes our first prototype made all out of hand. Look at those shining parts, which are undulated, they look like handmade right. Because in handmade, there are a lot of stresses in the plastic and look at the top, the top also is hand done in our vacuum

forming machine. The front panel is fabricated using small parts of plastic and joined together and this is a very very important technique students in design learn to make up a quick prototype or a mock up model we can see.

It is a mix of a prototype and mock up, because the bottom section is using stainless steel, which is like a prototype, which is like stronger, where as the top, which is supposed to be injection molded, which is not a one piece that is like a mock up, because it is got small parts which can break very easily.

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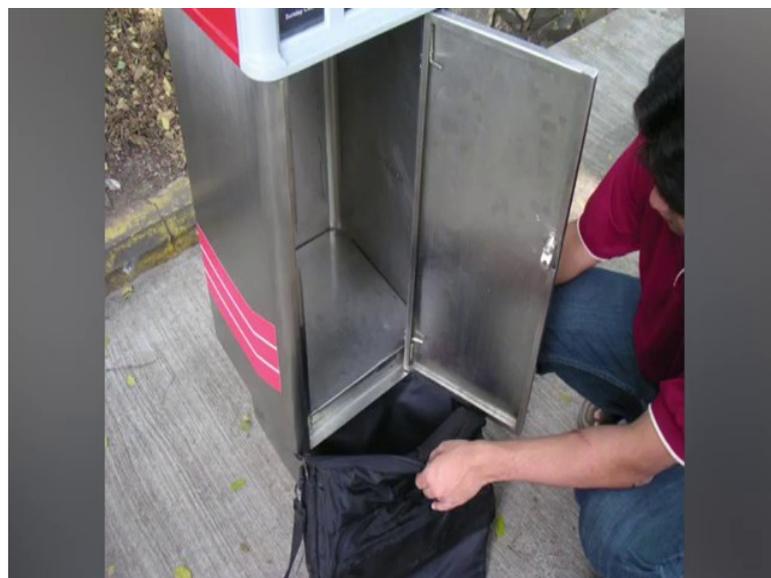
So, this is a mix of both techniques and then you use the same top on a larger box. So, you have the, you know, design which is modular the small and the large and this modular design is the very, you know, essence of our check, where we said that we need to have two sizes. So, from here we have those very important features of our design which we said we want a prominent front panel.

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Look at the front panel. It is telling you when the box is going to be cleared and the information of the address where the post box is located.

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There is a nice overhang in the bottom. So, you could collect the letters much much more easily by sweeping them inside and then you have this prototype which is now ready. So, this prototype then we had to take to our postal department and they were thrilled. All postmaster generals from various regions in Maharashtra, Pune, Aurangabad came and

we had a very very interesting session a GPO the General Post Office in VT and we had some fabulous inputs from all of them. They liked the design a lot.

In fact, they lift, they covered it with the white cloth and they lifted our and just to see the surprise and they give a very interesting insights. Some of the insights which they give us was that they said that these top for example, all looks like breakable and fragile and they when they open the box they said why should I drag the letters into the bag, I will like to hang a bag inside. The suggestion came from them to hang a bag inside.

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So, when the postman comes, he just grabs a bag and moves. So, that we then implemented we put four hooks. So, we could put the bag inside a plastic bag which is reusable. So, that the letters fall in the bag and then you can take the bag and go forward. So, now, look at this. So, where are we in the, you know, valley of death of a, you know, design, we are still in the Prototype, which is the first valley.

So, by making a prototype, what have we done? It is a quasi prototype. So, am I am feeling that we still in the middle somewhere there, we have still not climbed to a prototype, which we can put in the field to get actual feedback.

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But we did not get feedback, they said it is fragile and see what we did, we moved the, you know, address details and tag into the door, the door is stainless steel and it is very strong.

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We moved that into the door and look at the box at the top. Now it just has a posting slot that makes it very simple. So, you can see how valuable the user insights are in the design process. So, every stage you go to the user, you get phenomenal amount of inputs. So, this was really very very critical for the success of the design. So, from here we went ahead.

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We don't have any process in the middle, which is called product development from an idea to the market. There are people who do mass production, there is nobody you can do

small production. So, we took up this responsibility of pilot production and this is the one which is come out of the pilot production that one, you know, design where you see and I will show you how we went about doing it.