Innovation by Design
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Module – 02
Start of section 5
Lecture - 11
New users, new needs to meet

(Refer Slide Time: 00:06)

(Refer Slide Time: 00:11)

So, now let me show you another very interesting thing. So, while we were in all these journey, it came into paper saying that IIT Bombay students working on real problems in the hospitals. And solving the problems of pain for vein tracing all blah blah very good articles.

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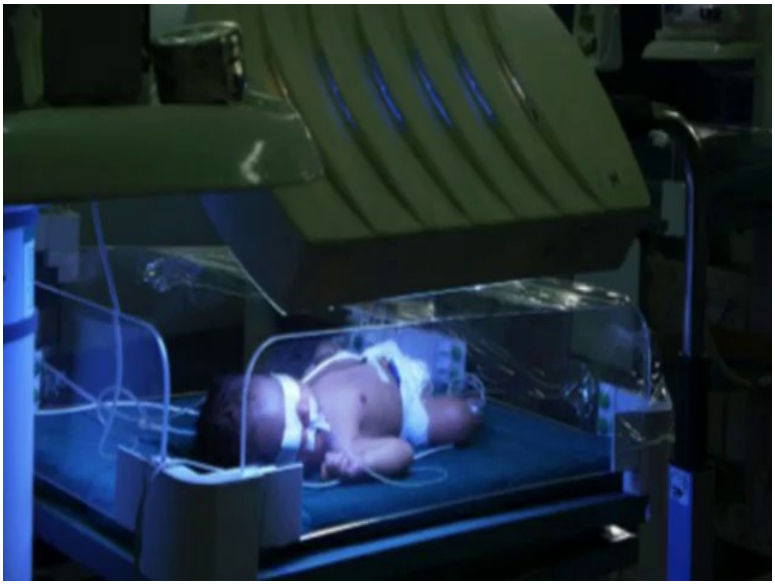

KEM doctors, who are in the pediatric ward, have this severe pain of not finding the vein of babies when they are under operations. They frantically trying to reach me.

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They said you put this in the paper we want this product now; because, our baby's hands are very delicate, we just not able to trace their veins because, they are always very transparent. So, they said you need do to something for us, then I put one student on the job.

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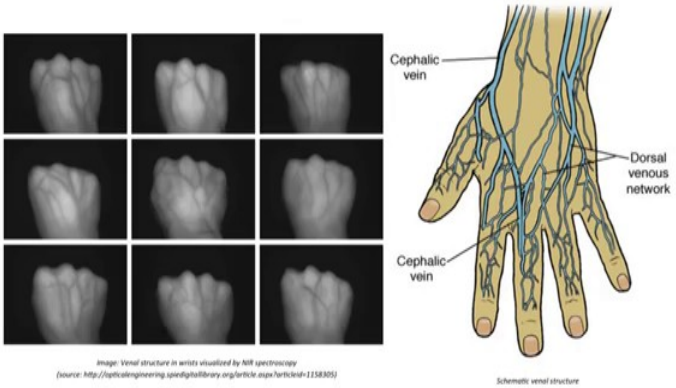

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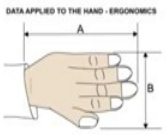
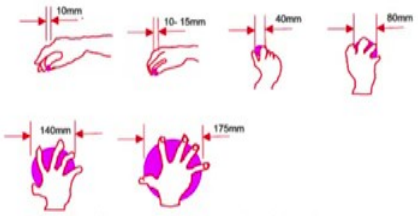
ANTHROPOMETRIC DATA

PUPIL/PERSON	A	B
Child A	100mm	53mm
Child B	103mm	48mm
Child C	90mm	47mm
Child D	95mm	44mm
Child E	102mm	50mm
Child F	97mm	41mm
Child G	79mm	43mm
Child H	103mm	51mm
Child I	104mm	51mm
Child J	74mm	38mm
Child K	78mm	46mm
Child L	81mm	39mm
TOTAL(S)	1091mm	546mm
AVERAGE	90.8mm	45.5mm



Anthropometric data on hand sizes for kids median age 6yrs
Source: https://journal.cpha.ca/



Data for design considerations for a wrist based device for kids aged 4-10 yrs

Image of a 1 yr old hand at KEM Hospital (Source: Author)

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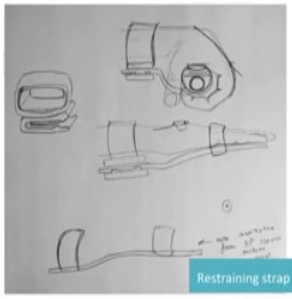
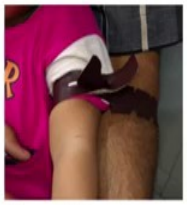


The form is such that it allows for use by a single doctor and no assistants as it combines a tourniquet action with a vein finding light source

This also has a retraining strap which could replace the vein finding light source once veni uncture has occured. This restraining strap would further eliminate the need for wooden planks



Straps patient to parent

Rapid testing on user

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So, this student went and he did all the study, we went to the KEM hospital came back and he designed this very innovative product. But did not use the synergy of our existing design, what is the synergy in our existing design? We had already PCB done. This man again went to the Lamington road got all the LEDs did all the test again. Guy said you use all the knowledge available. And then he finally, made a mockup model.

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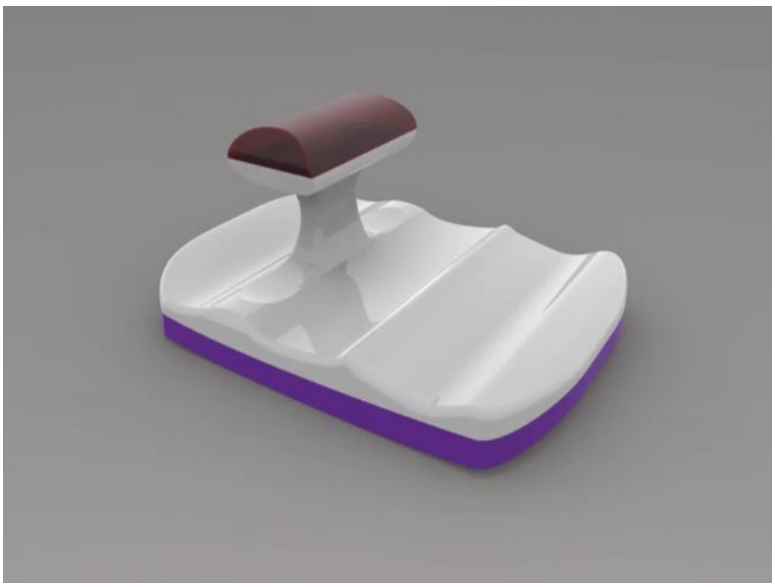

So, again we just reached the first valley of death. Then interesting thing happened. A colleague of mine from you know bioscience said that his nephew wants to come for

internship. A product design student then he came and I told him will you like to work on the vein tracer for small babies?

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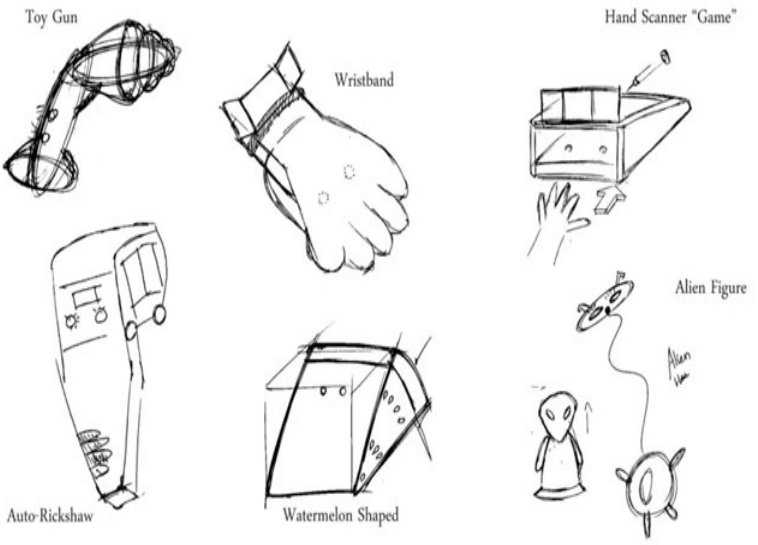

Then he came up with the creative analogies of what type of shape it should be, then you know I had to put my foot down and said.

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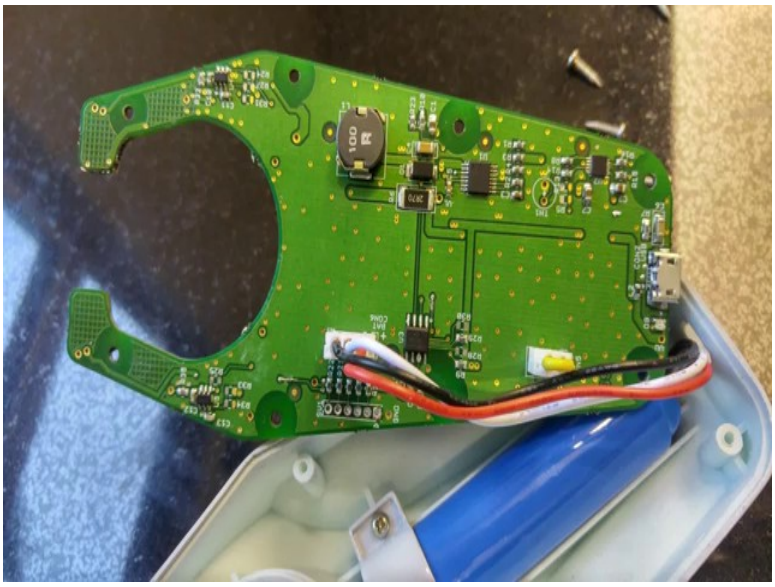

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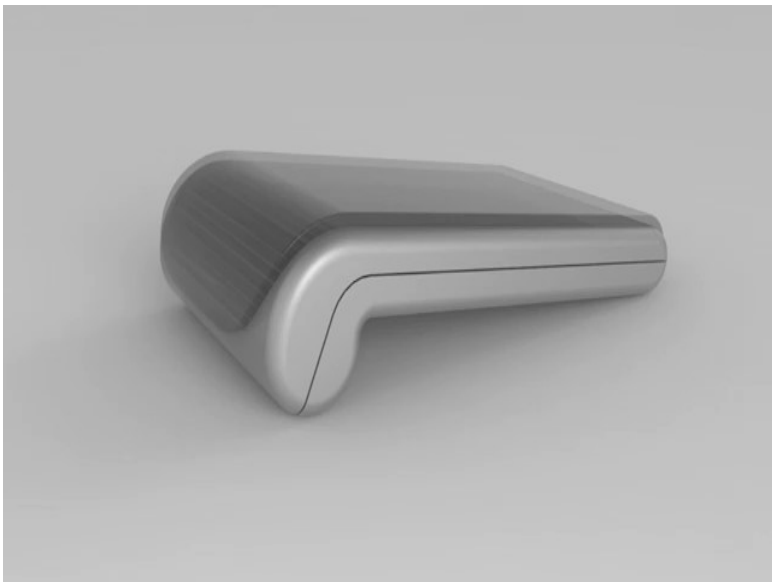

You have to use my existing PCB and take it to test immediately. So, he developed this very very fine small unit. We did the complete process. And we then built a rig using the PCB, which we already had which was having less intensity. Because remember we made multiple PCBs with different intensity of LEDs ? Doctors in KEMs hospitals are very very busy they just cannot give you time whenever you want.

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He followed up regularly with them. And went to the operation table to check how it will work? And then we got very very valuable feedback from the doctors. So, we got that

input. And now we are making the pilot production so, that we can give a couple of units to KEM hospital. So, we are still working on this vein trace for KEM hospital.

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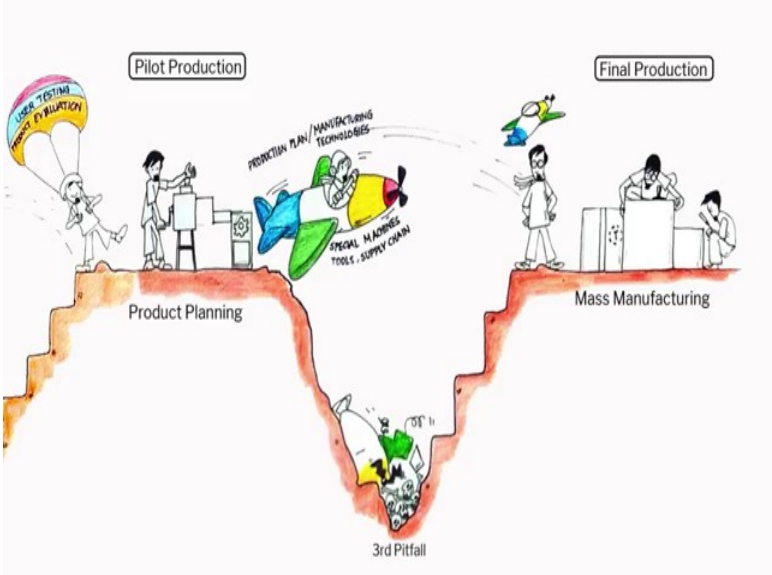

Which is now in which valley of death? Second valley of death. That and the main vein tracer is which valley of death? Third. We are not going to be successful if we do not built teams.

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Collaborate with industry, make a startup out of it, go and leverage clients who are in this business, who are ready to diversify into manufacturing. Do technology transfer to large companies that are all into medical products.

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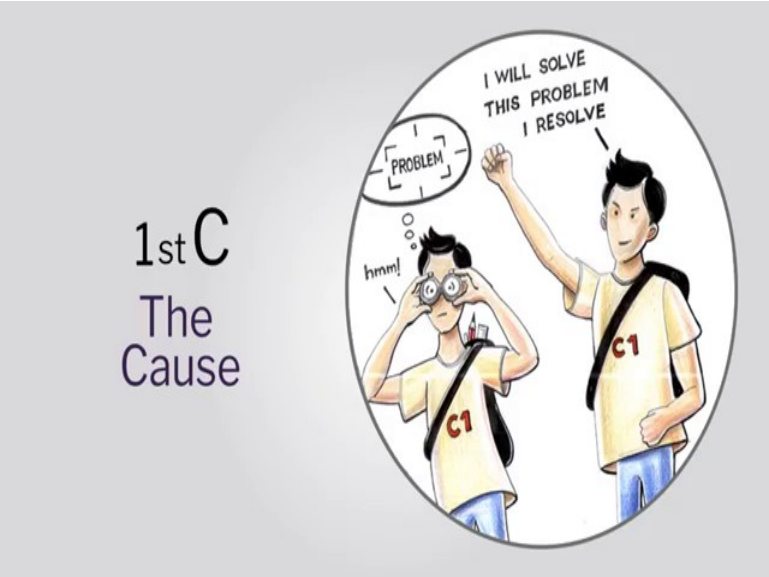

Why did I use this example for the cause tell me quickly? Out of the 7 C's I use only, I have 20 example. But I use this example to explain the cause and the uses why do you think I did that?

Student: It was getting into the field and understand the uses.

Getting into the field and understanding the user.

Student: The cause kept changing

Very good, you could see different causes in the same product segment. And if you do not stick to your cause, you will be lying in the valley of death for the product idea. Any other, what are the reasons I chose this case study? What are learns- learnings we get from this case study from the cause point of view from the 1st C point of view from the user point of view?

Student: User testing at every stage

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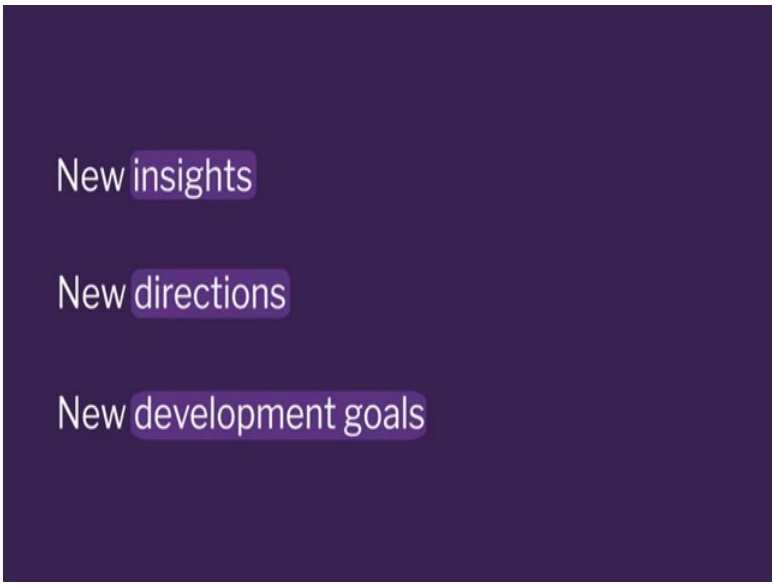

Very good, user testing at every stage gives you new insights, new directions, new development you know goals.