Physical Modelling for Electronics Enclosures Using Rapid Prototyping

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Lecture – 21
3D Laser Cuts 2, Open Source Public Prints

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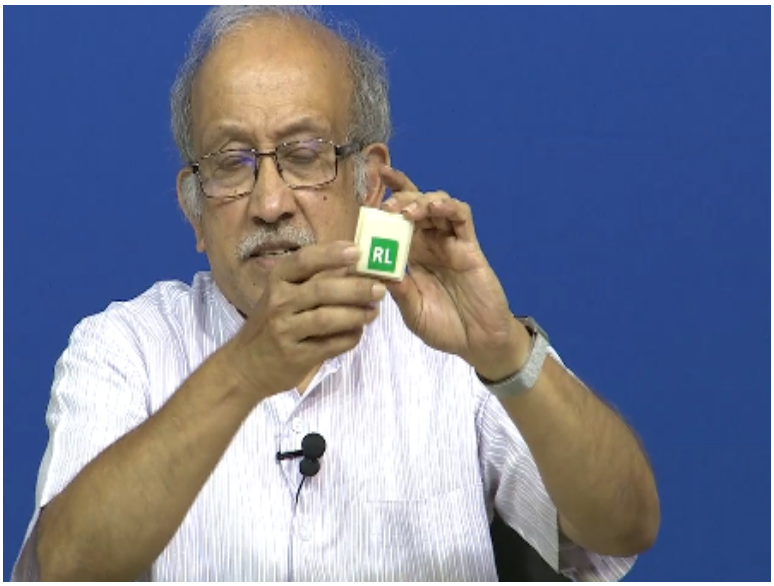

This is taken directly from an electrical switch gear house wiring and after having modified you know everything and all that a vastly improved directly printed thing has been made this is known as part of kind of another project I thought they know I will no show you. You have seen this no exactly what this picture shows here.

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This picture what it shows is they were taken an extinct in 3D what do you call injection modelled pad and they have tried their best to do something else with it

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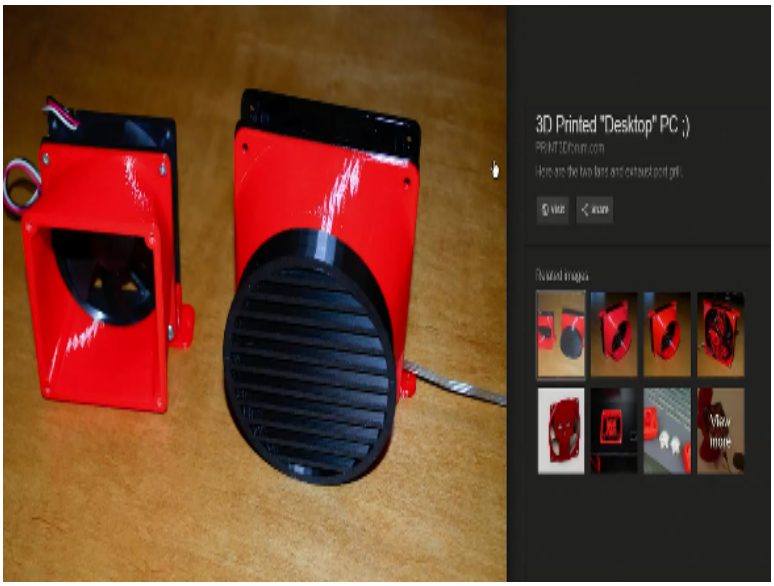

Now you see here I think you know what it is it is a fan and you see what a beauty it is, what it looks otherwise like a dull what do you call I do not know what shall I call it a PC fan at the back. Somebody has played with it and found out that they can make a nice ventilating fan This right know is very, very easy any 3D software will convert a square profile to a round profile or will do any matching and very cute and interesting things can be made here.

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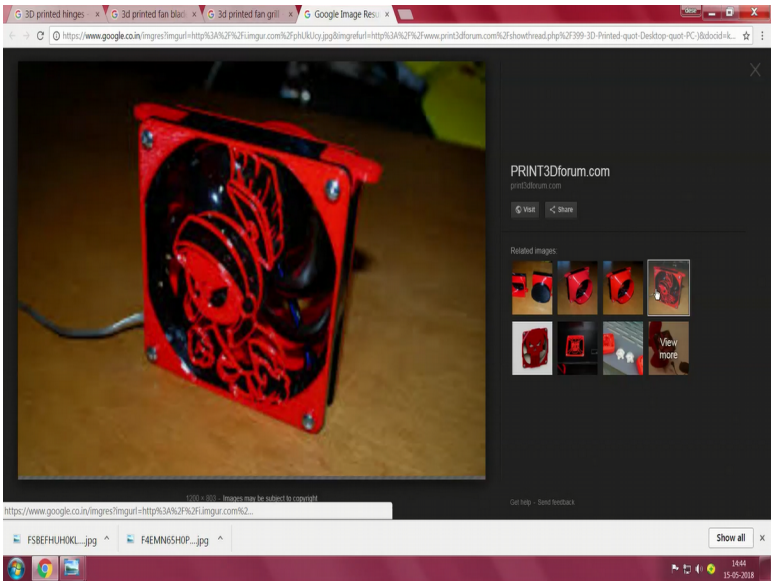

Can you see here I do not know what that cartoon character is. So, I have a cartoon character which it is a fan plus and it is a cartoon character, just keep it on the table so it does its function extremely well.

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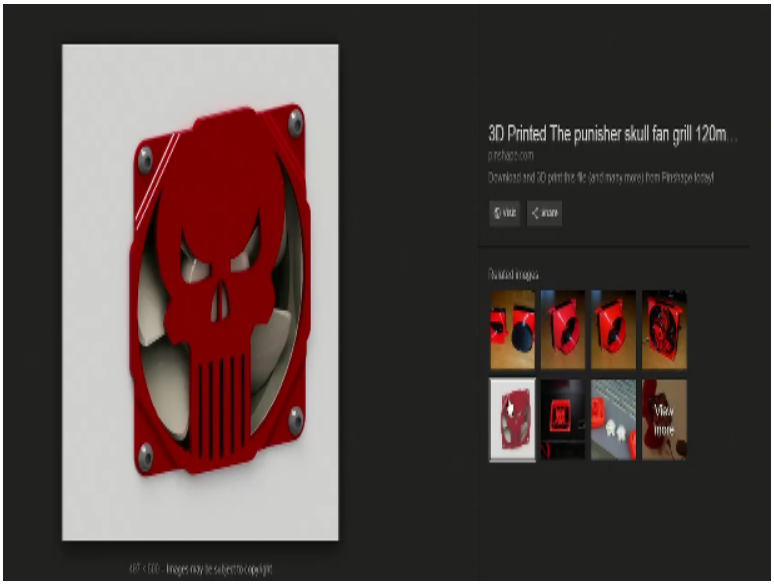

So, I can say the punisher skull fan in sun so if you take a t shirt first of all it is shared made it be shared because it was formed in the form of a T. Now eventually so many variants and well T Shirt is okay the size fit and all is universal. The logo and the print on it is what all T shirts are about same thing it happens here okay so somebody has no made a beautiful variation of this thing.

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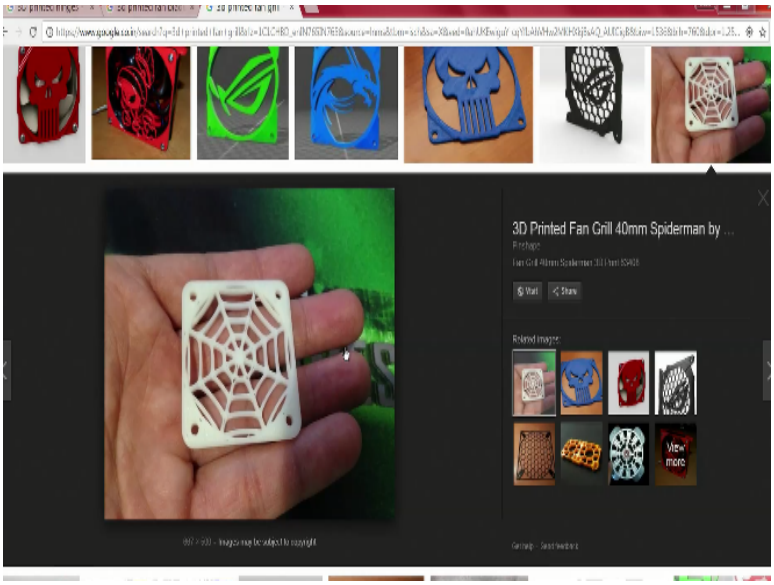

Now if you see here you have so many unlimited amount of things which you can put. So, I think we are all familiar with this good old traditional patterns you see here there is a very traditional honeycomb pattern and then why not make something. If you are a fan of spider-man they made it look like a spider thing. These you know it is very very easy you can now go back and you know check I will just stop here and see what else can be done here.

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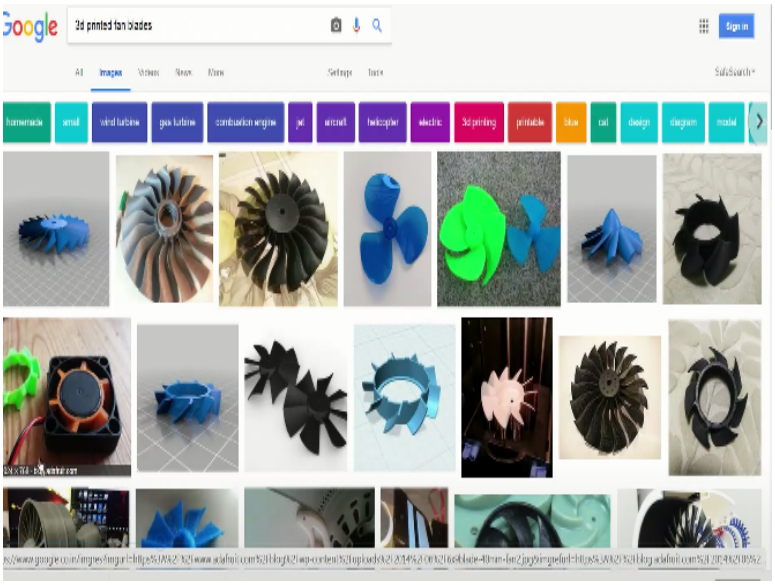

Now can we make technical things like you see here we have a nice fan here that is some internet problem. So, you can see that if you have a mechanism a mortar and anything it was always very easy for us at least first cut you know things to be made easy for us to make these things.

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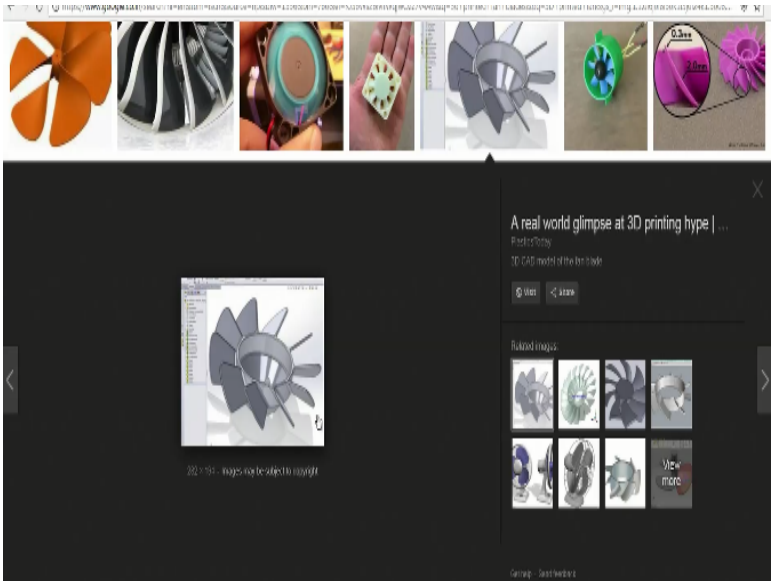

But it is real as well as real world glimpse the 3D printing hype that is what the picture says. So, my suggestion is you go back and read and see what it is.

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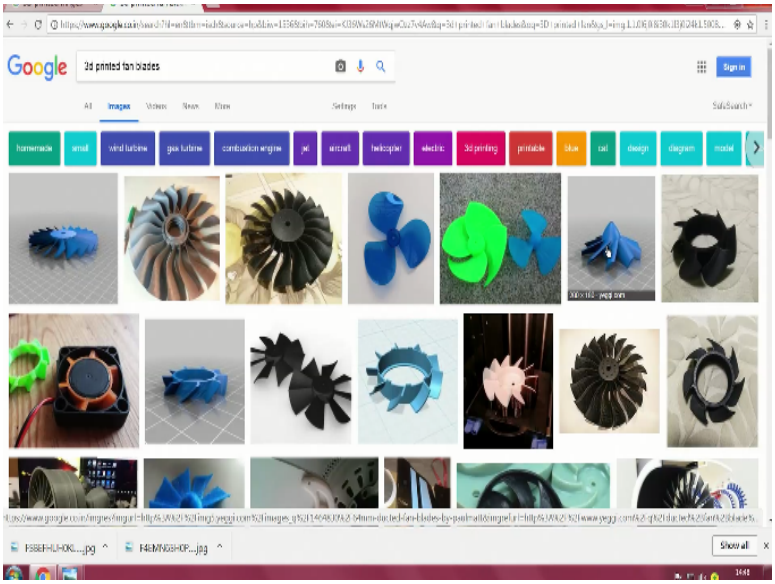

If not in mass manufacture in samples. And just before we take those things it is very much easy for us to print and verify these things. So, this one is probably what do you call a spinner like thing and it is a regular what looks like a turbo what do you call compressor which can be used inside. So, I will probably leave it here and then I will go to some very mundane and routine things.

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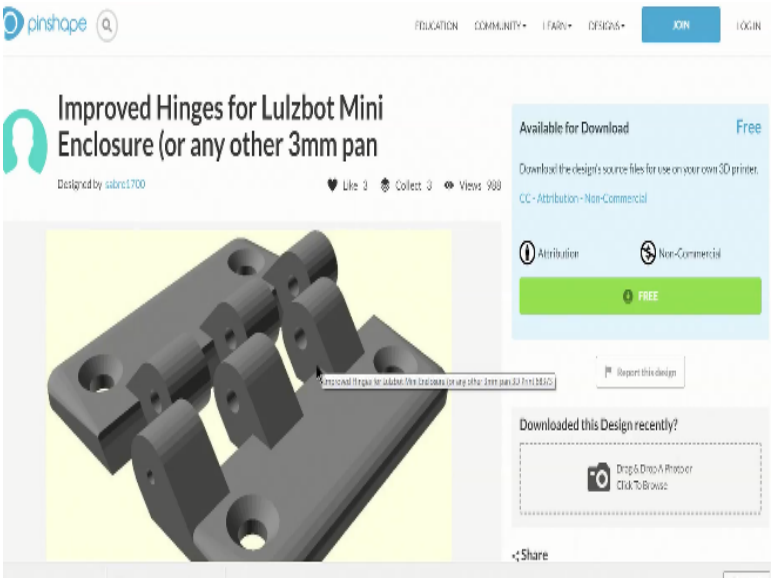

You have seen this enough data is available for you to go and check and earlier what has been printed what has been made also all sorts of variations are available. I do not think i need to explain further in this. Just have a look at it easy not impossible to print and any offset anything you want to do can always be done here including in case you want to make a stopper such that it does not over shoot.

And in case you want to have a counter sign or anything you want everything can be easily done by our famous 3D printing.

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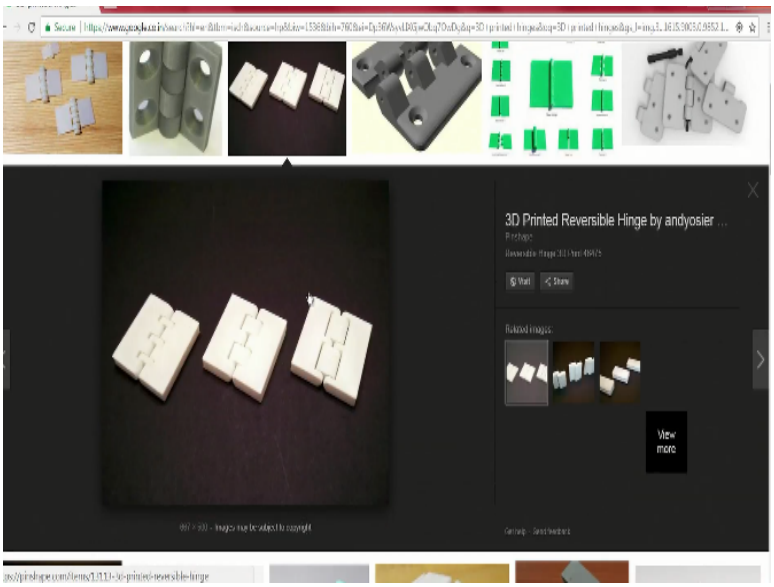

Anything unusual in this I think you will notice it is a double hinge okay I have a hinge here and

then hinge here with a double hinge it is possible for to bend anything in the other direction also. So, makes an interesting what you call you know reversible hinge concepts. These things that are at a concept level very very easy for us to make, print, try. Can you see there so you can have it when it overlaps this way that way.

And if you are trying some electronic keyboard or something with a display may be this will help you a lot. It is just for you if you are going to search on the internet you need not copy anything you will have your own variation of it.

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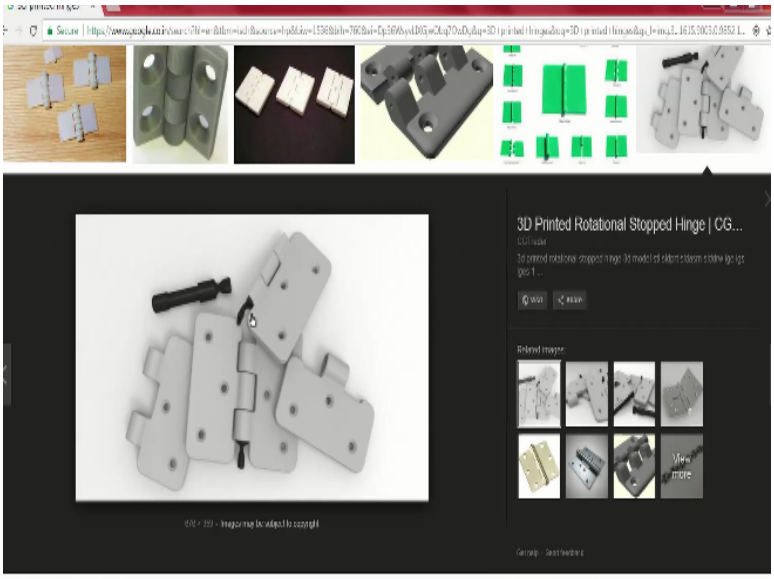

And my take here is the parts which take the load it is best still to make them in metal. So, I do not know in this case whether it is metallic piece or it is what do you call. The various things here probably yeah it may not be a metallic piece it may or may not be a metallic piece and at this point know I thought I will show you something here again and see what we have where I have kept my mouse.

So, all these things you have the basic solid so basic solid can be in another thing what we have both solid and solid assembling program. And eventually everything has to be converted into a stereolithography file. Only this STL files are the ones which are accepted by 3D machines 3D printers as such. So, I will see whether I can I thought I will show you there but somehow I ran out of the problem here.

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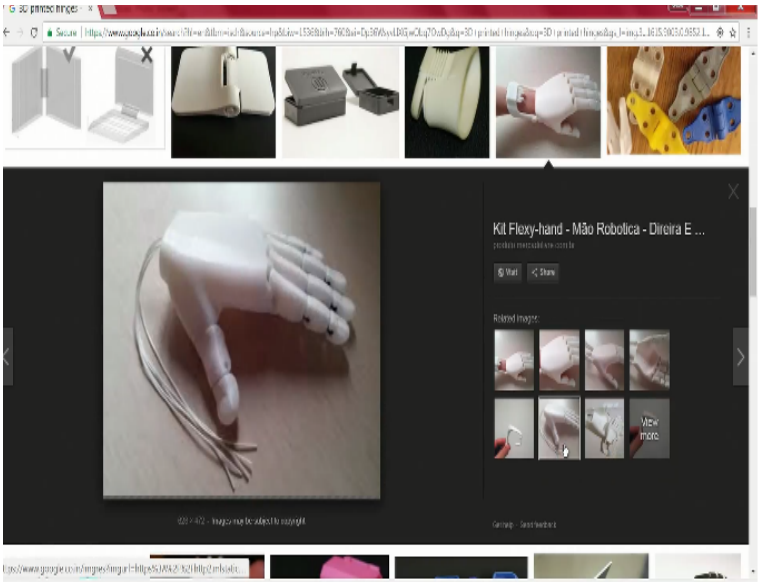

So, this is a really really beautiful example so if you go around and check anything you have including watch strap including a what looks like a flexible hand say you can say flex it and individual magnetic hinge for anatomical models that is probably inside know. I am not very clear what they are what he is talking about but this whole thing works very well with wires being pulled and so on. So, this is really what good 3D printing is all about.

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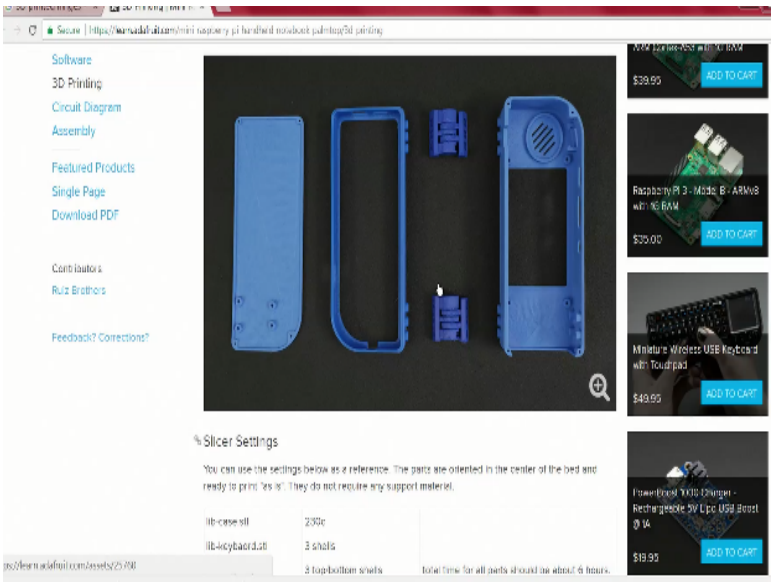

See It is very easy for you and now it comes to the other point is saying what do you call what do you with it whether you create the models or go and import them or whatever you want to do. So, obviously when the metal is available like this is to avoid shipping and you can probably buy

the what do you call the print STL file and then print it yourself. Once have confidence in the supplier they will give you the other parts.

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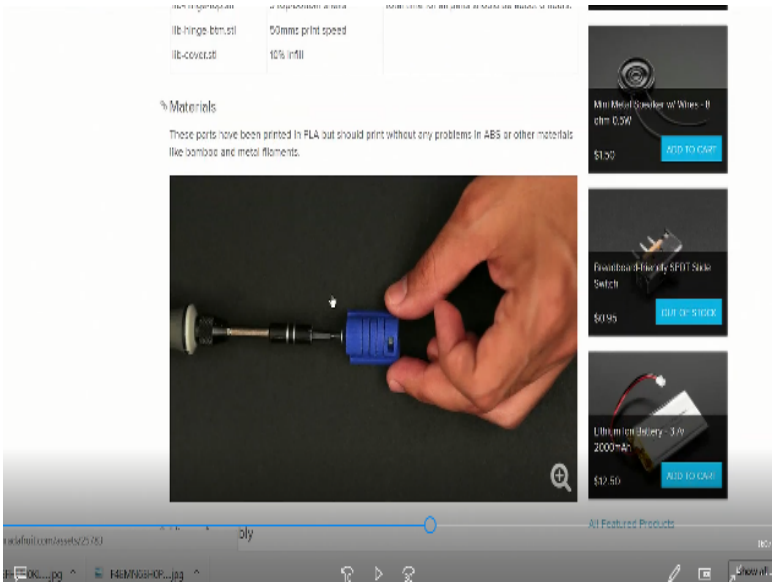

You have seen that the parts have been printed in PLA but should print without any problems in ABS or other materials and so on and so on like that. This is I think poly what do you call lactic acetate it is what you call easy to print the low what do you call low temperature easy thing to make. But is it sufficient for most applications.

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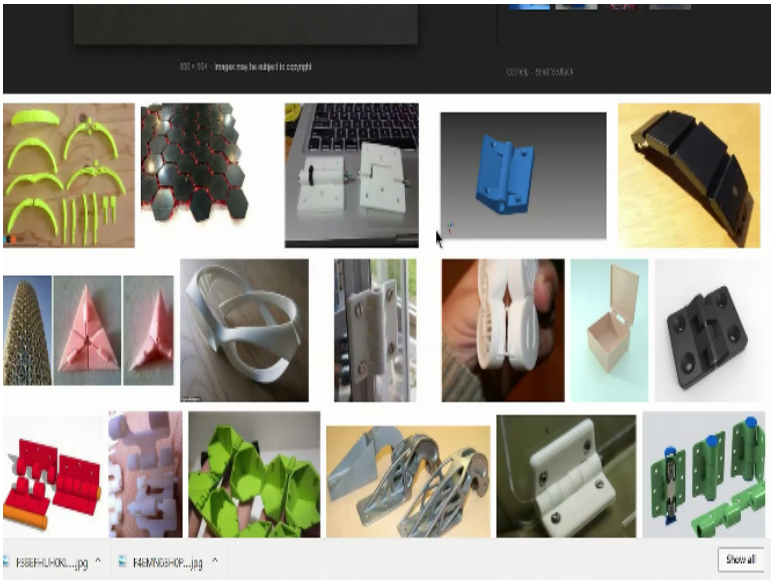

Then they have shown here how the hinge assembly makes itself you have seen this. It is just to get familiar with it so we have a large a list of the anything you want to make probably it is

available. Now it comes to you know what do you call nature of.

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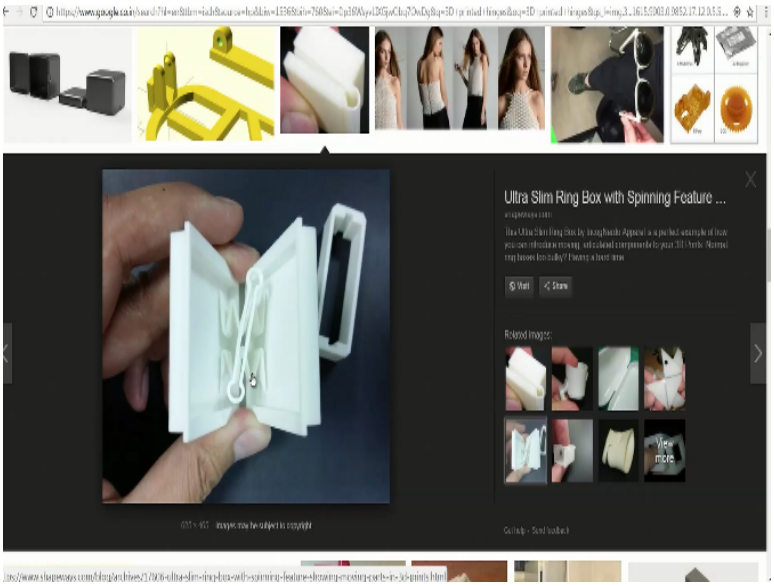

Oh do you remember this is taken directly from their website of stratasys machine we have here so what has been done here is there been able to make and you see here is that shaped something is there. There is a screw inside and you will see that there is another living hinge. In the case of this living hinge there is a small piece.

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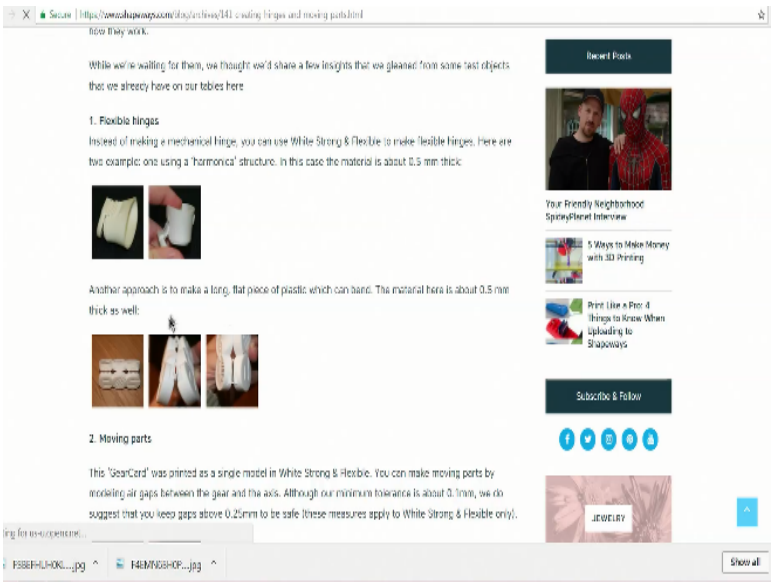

And this so yesterday is trying to show you my or i do not know how does it loading correctly. It is slowly loading here. Instead of making a mechanical hinge you can use there is there this patent material to make things which can easily print about it. So, we have all this some of them

are novelties some of them are real. So, I have here my this came with a camelion battery this thing thinks like this can easily be printed in 3D printing.

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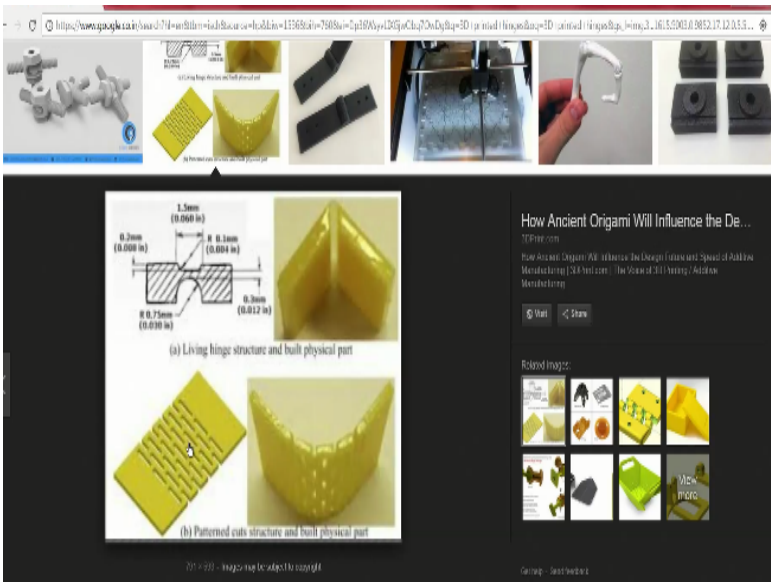

We even have something like a cake box and see here anything you want know somebody has done it and you know enough data is available for you. So, that you know you can practice and make things you know a little more flexible you can make things that you know stack easily in this case see here very much flexible items. These are flexible stuff which you can use for various you know operations.

So, easy for you to build all these things and another interesting thing is often very difficult to make mechanisms.

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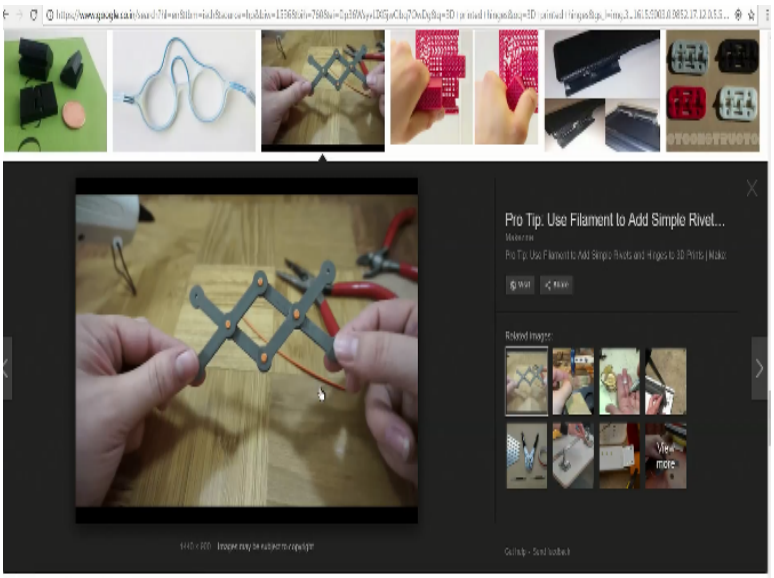

If you had to make a pentagram if you were to make something such things that are relatively easy to make you know what you call this technology.

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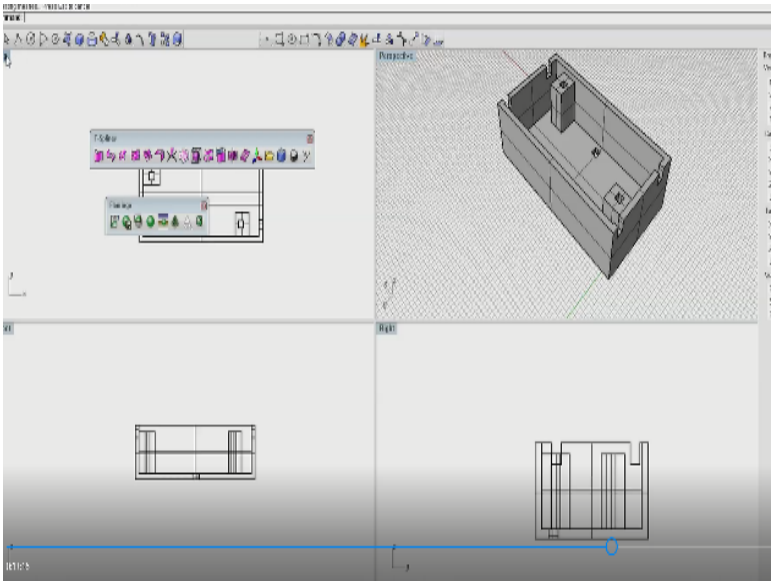

So, if you come back to my thing here taking hints from all the things which i have seen here on the what do you call which are available on the internet and we went about and tried to create this object and again i told you about it when you are here the starting point no its probably that you tried to take a you need real life data. In my what looked like an extremely simple how do is say box to make a hold a printed circuit.

So, we see that several of the details he had given here are very, very critical.

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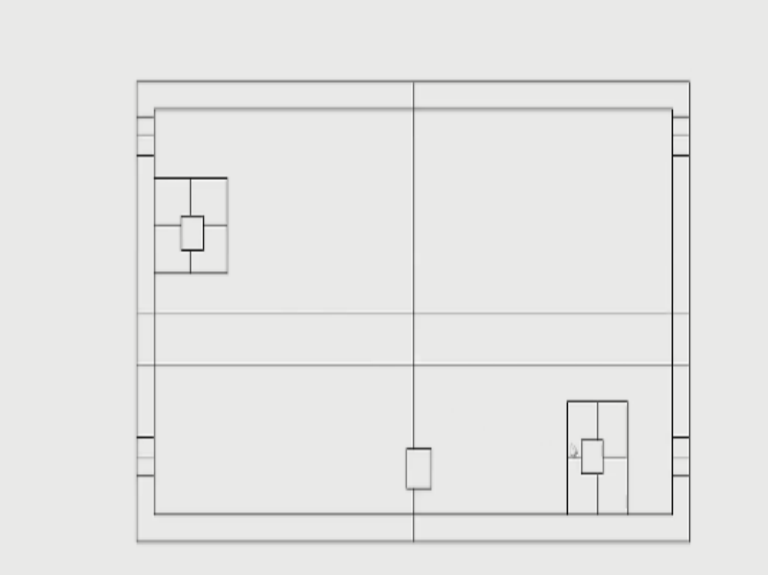

That opening in that opening refers to where it resides and why we need to remove it is all around there are components which are likely to touch and I have 2 (()) (14:16) here to ensure after the soldering is done the wires can be taken of here.

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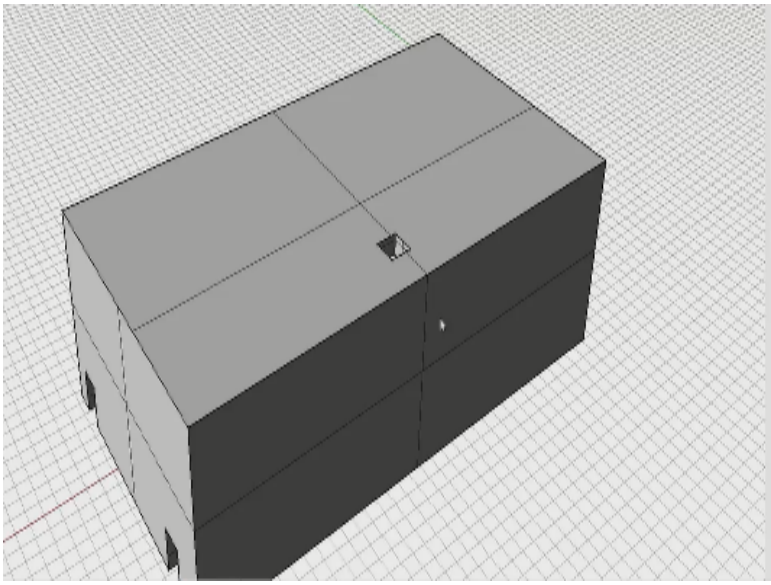

And on the other side I have a small opening there which assists for tuning the potentiometer which is there inside. And this is only for fine adjustments finally we will be able to do it and then we notice one of the important thing is the all the openings a little squarish that not circular any more. Because if you want to make it circular so when the building part of it is okay while the printing is going on usually support material will be required for that.

When the support material is required then you know it takes a little slower. And after that releasing it becomes much difficult so I mean for this session I will stop here and I will see what can be done next.

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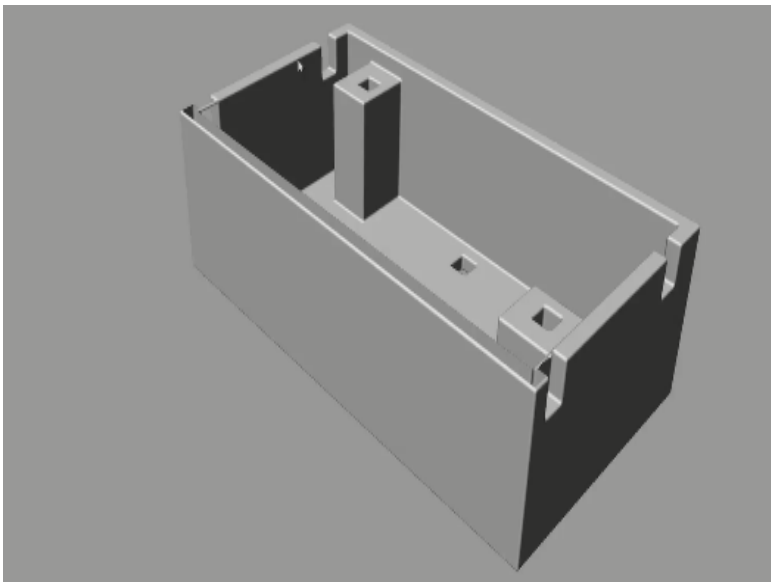

And now there is one more thing i wanted to stress most of the things that shown here are sharp edged. But because of what do we call are generally they do not look very well when you want to look at them because they look flat. So, easiest way for most of our times. What do we do is we give it is gentle fillet in the corners see if I take all the adjust here and fillet i hope it does something it has created.

Only when I give an or rendering you will be able to see how well it has been rendered can you see here. Now the corners are able to what do you call catch the highlights and this looks more like a real object. But in actually real printing getting this fillets you know usually messes it up a little. Having done this if we have the corresponding matching part typically a printed circuit board.

And In my case at the back I have a hinge sting that is going to sit on it my job is done and it will come out perfect the first time with a little experience it will come out perfect the first time. So, I will stop here thank you the I will continue if i mean if the I have loaded it down on the machine.

If the machine starts I will continue in the next session with how this job is printed how the small DC DC converter sticks inside okay so thank you.